

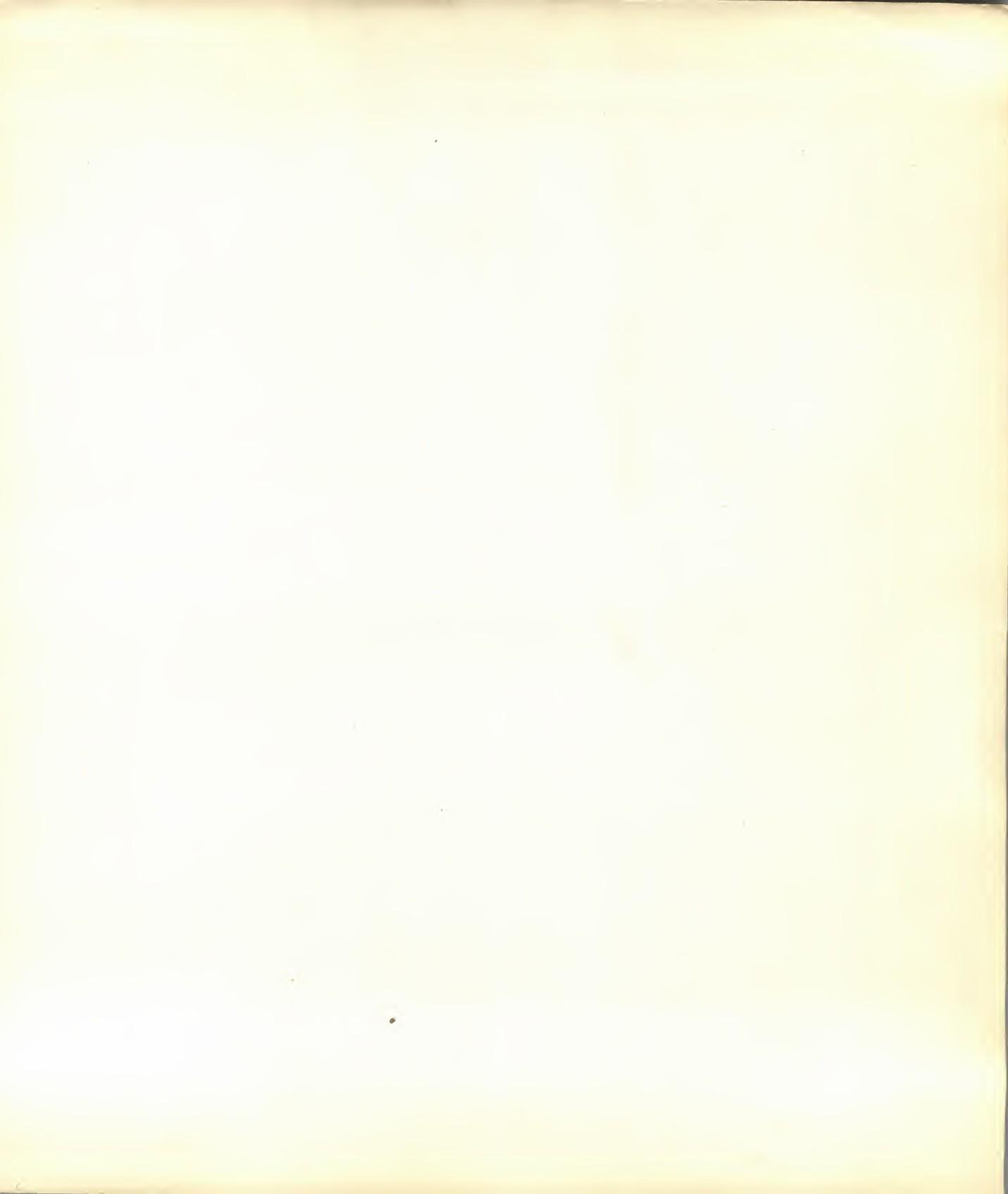
Read This First

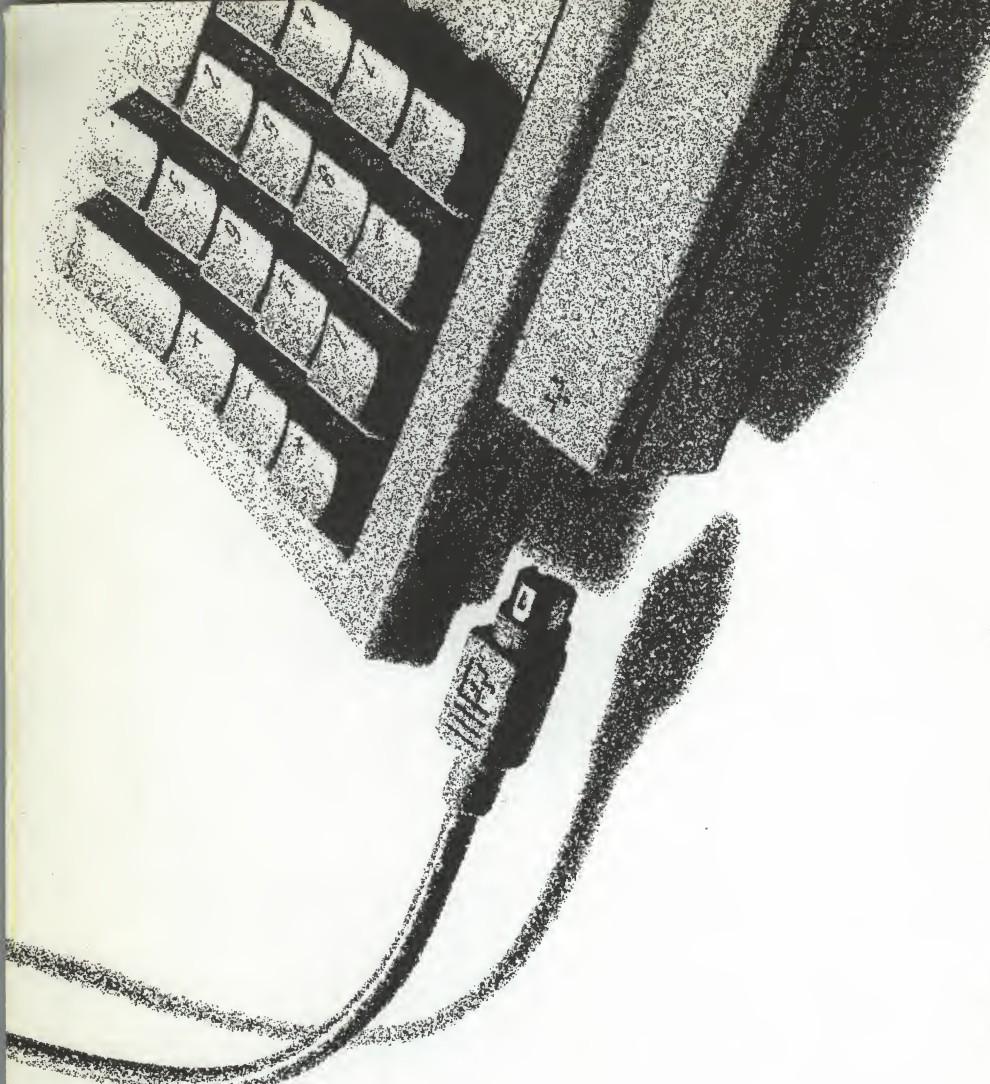
Getting Started

With Your Macintosh Quadra 840AV

Includes setup instructions and important health-related information







Getting Started

With Your Macintosh Quadra 840AV

Includes setup instructions and important health-related information



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Important

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. See instructions if interference to radio or television reception is suspected.

Radio and television interference

The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple's instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for assistance. Or consult an experienced radio/television technician for additional suggestions. You may find helpful the following booklet, prepared by the Federal Communications Commission: *Interference Handbook* (stock number 004-000-00345-4). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

△ Important: Changes or modifications to this product not authorized by Apple Computer, Inc., could void the FCC Certification and negate your authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components. It is important that you use shielded cables and connectors to reduce the possibility of causing interference to radios, television sets, and other electronic devices. For Apple peripheral devices, you can obtain the proper shielded cables through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance. △

DOC Class B Compliance This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Observation des normes—Classe B Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans les règlements sur le brouillage radioélectrique édictés par le Ministère des Communications du Canada.

情報処理装置等電波障害自主規制について

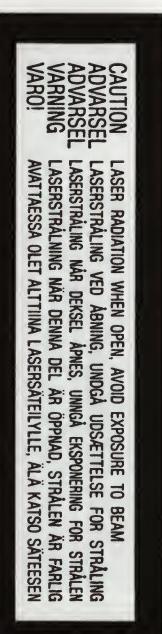
この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。取扱説明書に従って正しい取り扱いをしてください。

CD-ROM drive

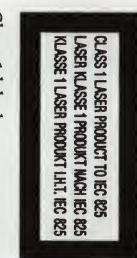
► **Warning:** Making adjustments or performing procedures other than those specified in your equipment's manual may result in hazardous exposure. ►

► **Warning:** Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an authorized Apple service provider. ►

If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located on the computer, indicates that the drive meets minimum safety requirements. A service warning label is on the CD-ROM drive inside the computer.



Service warning label



Class 1 label

Part I

Setting Up Your Computer

Chapter 1 Setting Up

Chapter 2 Learning the Basics

Chapter 3 Connecting Other Equipment

Chapter 4 Installing System Software

Part I of this book provides the information you need to set up your Macintosh and to begin learning to use the computer. Its chapters include instructions for

- Setting up the computer
- Arranging your office and placing the computer so that you avoid discomfort as you work
- Using the introductory tour, *Macintosh Basics*
- Connecting other equipment to your computer, such as a printer or modem
- Installing the system software for your Macintosh, if necessary (for most Macintosh computers, system software is installed at the factory)

If you're new to the Macintosh, you should go through "Setting Up" and "Learning the Basics" first. After you've worked with the *Macintosh Basics* program and gained some experience using the Macintosh, you can proceed to "Connecting Other Equipment" and then go on to Part II of this book.

If you're an experienced computer user, you may wish to set up all your equipment now and even sample the advanced features described in Part II right away.

1980 (1981)

1980

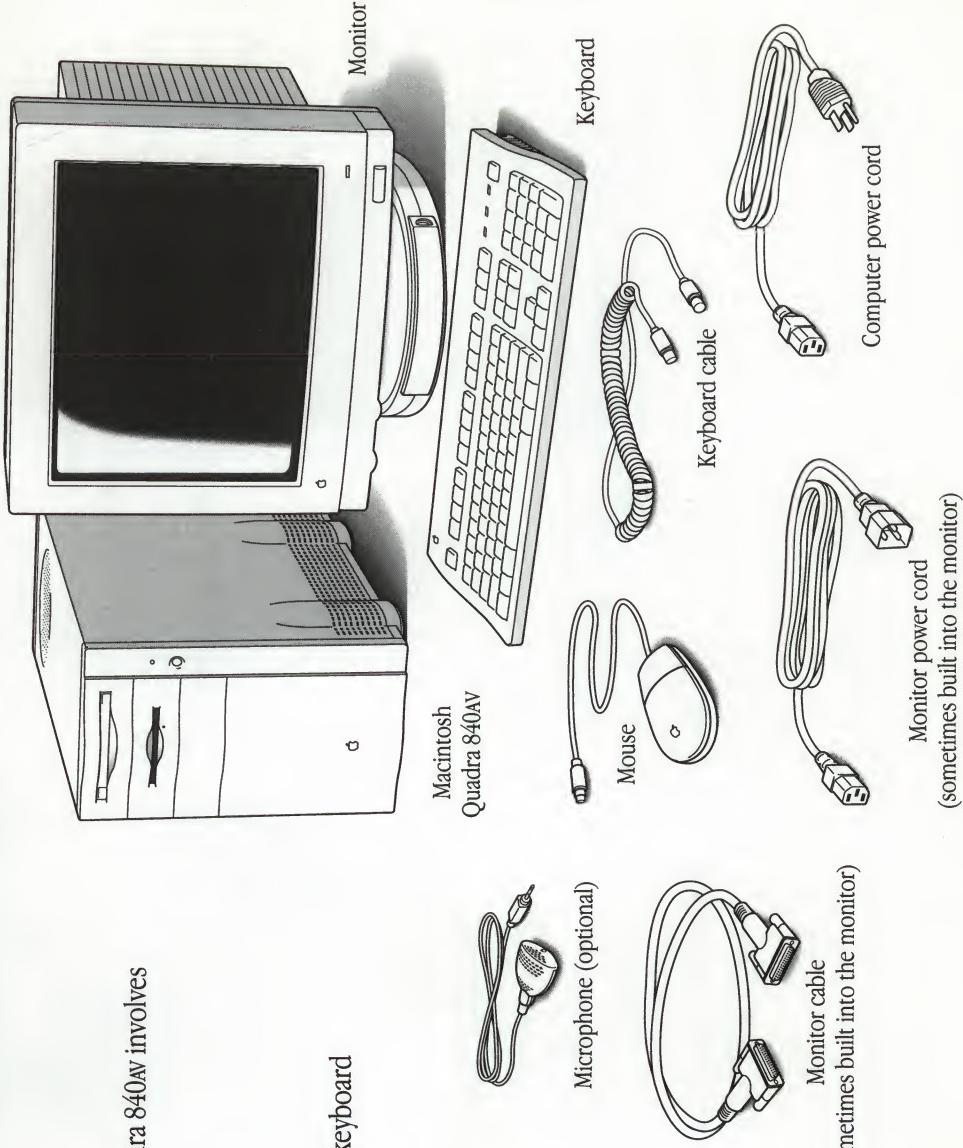
1980 (1981)

Chapter 1

Setting Up

Setting up your Macintosh Quadra 840AV involves these steps:

- Plugging in the computer
- Connecting a monitor
- Connecting the mouse and keyboard
- Turning your computer on



Plugging in the computer

Plug in the Macintosh before connecting anything to it. This grounds the computer and protects it from electrical damage while you are setting up.

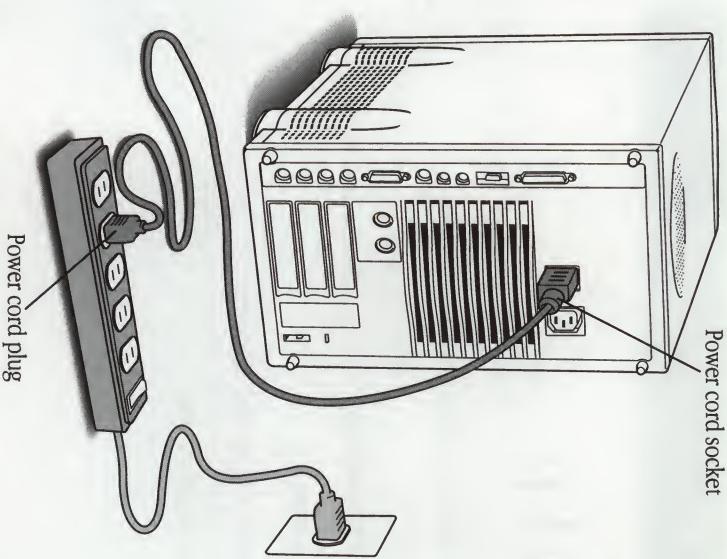
1. **Plug the socket end of the computer's power cord into the recessed power plug (marked with the symbol ~) on the back of the computer.**

2. **Plug the other end of the power cord into a three-hole grounded outlet or power strip.**

Choose a power outlet to which you have easy access.

► **Warning:** This equipment is intended to be electrically grounded. Your Macintosh Quadra 840W is equipped with a three-wire grounding plug—a plug that has a third (grounding) pin. This plug will fit only a grounded AC outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug! ▲

△ **Important:** Be sure at least one end of the power cord is within easy reach so that you can unplug the computer when you need to. △



Installing an expansion card

If you purchased an expansion card for your Macintosh Quadra 840AV, see "Installing an Expansion Card" in Chapter 3 for instructions on installing it. If you don't have an expansion card, go on to the next section, "Connecting a Monitor."

Connecting a monitor

Your computer provides built-in support for most Apple monitors.

See the booklet *Technical Information for the Macintosh Quadra 840AV* for a complete list.

With the appropriate adapter cable, you can also use a VGA monitor or an SVGA monitor.

Other non-Apple monitors are also supported. See an Apple authorized dealer for details. (If you are connecting a different monitor, see the instructions in its manual.)

Follow these steps to connect your monitor:

1. Place the monitor where you will be using it.

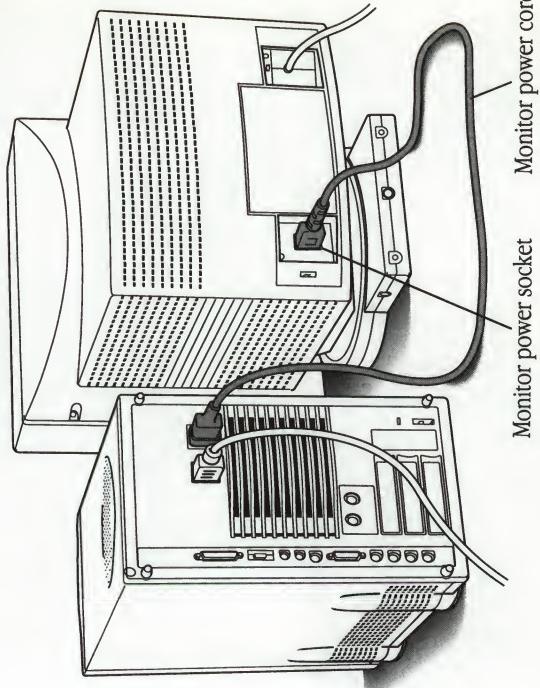
Keep in mind the following considerations:

- Allow a few inches for air circulation around the computer and monitor.
- Make sure the top of the screen is slightly below eye level when you're sitting at the keyboard.
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows.

- Consult "Arranging Your Office" later in this chapter for suggestions about locating your computer equipment.

2. Attach both ends of the monitor power cord.

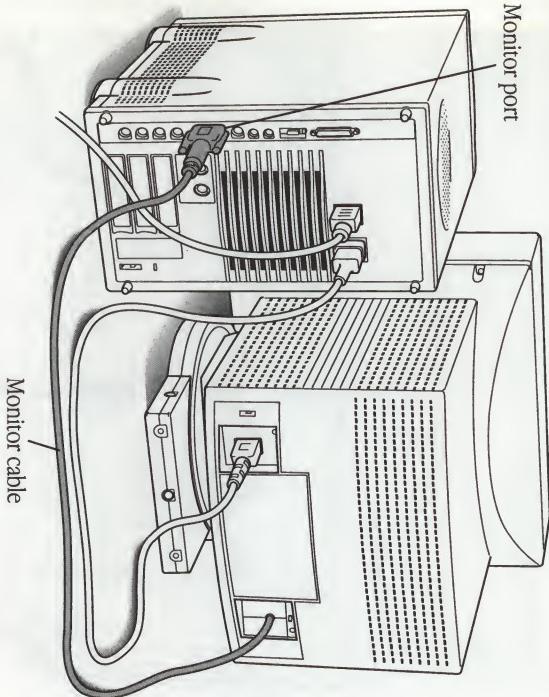
Connect one end of the cord to the monitor and connect the other end to the socket on the computer. (Some monitors have to be connected to a grounded power outlet instead of to the computer's power socket. Check the monitor's manual for this information.)



continues ▲

3. Attach both ends of the monitor cable and tighten the thumbscrews.

Connect one end of the cable to the monitor (if it isn't attached already). Then connect the other end of the cable to the monitor port (marked with the icon  on the computer).



Connecting the Apple AudioVision 14 Display

The Apple AudioVision 14 Display has built-in stereo speakers and a built-in microphone that is compatible with the Macintosh Quadra 840AV.

To use this monitor with your Macintosh, follow the setup instructions in the *Apple AudioVision 14 Display User's Guide*. Then verify that you have completed the following steps to ensure that you can use the monitor's microphone for speech recognition.

1. Make certain that the monitor's ADB cable (marked with the icon ) is plugged into the ADB port on the computer.

You can then plug the keyboard cable into an ADB connector on the monitor.

2. Make certain that you install the software supplied with the monitor, using the *AudioVision Installer* disk.

Follow the instructions in the monitor's manual for software installation.

With these two steps completed, you can use the microphone built into the monitor to give spoken commands to the Macintosh. (You may need optional software to use spoken commands; it is available from an Apple-authorized dealer.)

If you are connecting the monitor to an expansion card, attach the monitor cable to the external connector on the card.

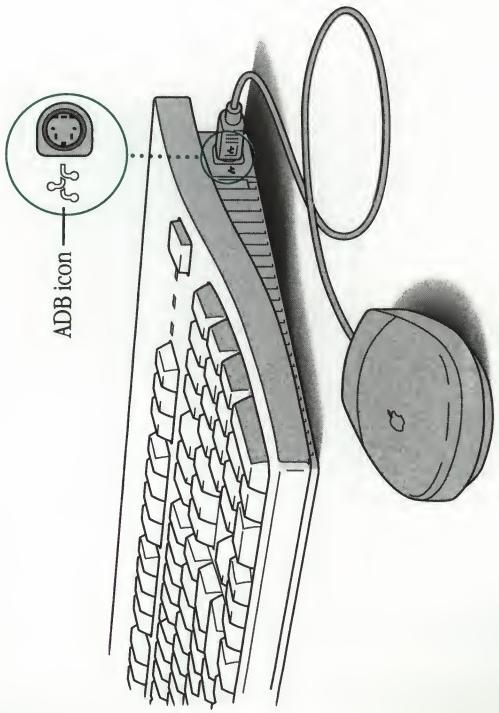
Connecting the mouse and keyboard

Follow these steps to connect the mouse and keyboard:

1. Plug the mouse cable into the port on either side of the keyboard.

Most right-handed people prefer to use the mouse with their right hand; most left-handed people prefer to use their left hand. Plug the mouse into the port on the side you prefer. The plug and the port are marked with the same icon (⌘).

Align the icons before you insert the plug. The positions of the port and icon on your keyboard may be different from those pictured.



- ❖ *By the way:* The ⌘ icon is called the Apple Desktop Bus (ADB) icon. You may see this term in other places in the manuals that came with your computer. ❖
- 2. **Plug one end of the keyboard cable (both ends are the same) into the other port on the keyboard.**
- 3. **Plug the other end of the keyboard cable into the port on the back of the computer marked with the ⌘ icon.**
- ❖ *Connecting the keyboard and mouse to a monitor:* Some monitors have a port to which you can connect the keyboard and mouse. See your monitor's manual to determine if it has this type of port, and follow that manual's instructions to connect the mouse and keyboard to it. ❖

Connecting other devices

- ❖ *If you are new to the Macintosh:* It's a good idea to get some experience with your computer before attaching other equipment, such as a printer or scanner. Continue with the next chapter, "Learning the Basics," which tells you how to begin the *Macintosh Basics* tour. This on-screen tour introduces you to basic Macintosh operations. ❖

When you are ready to connect other equipment to your Macintosh, follow the instructions in Chapter 3, "Connecting Other Equipment," along with the instructions in the manual for each device, to connect it to your computer.

Turning the computer on

Turning on your computer is a two-step process. You need to turn on the monitor and the computer separately.

1. Turn on the monitor.

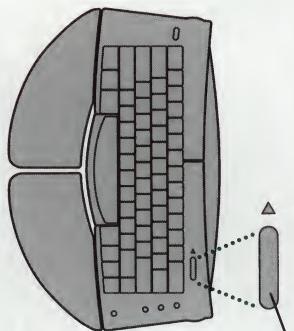
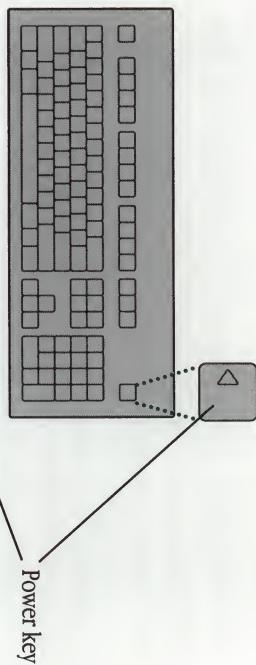
On some Apple monitors, the power switch is on the front; on others, it's on the back. It's usually marked with this icon:



- ❖ *By the way:* You only need to turn on the monitor once. From now on, the monitor will turn off automatically when you shut down the computer, and it will turn on automatically when you start up the computer. (If the monitor is not plugged into the computer, it must be turned on separately each time you turn on the computer.) ❖

2. Turn on your computer by pressing the Power key.

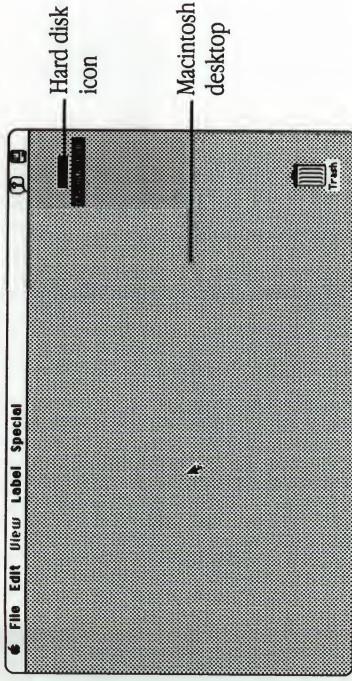
You'll find the Power key at the top of the keyboard. You can recognize this key by the triangle outline on it.



What you see after you turn on your computer depends on whether or not system software has already been installed on your hard disk.

3. Check to see what's on your screen.

- If you see the *Macintosh desktop*, shown here, your software is already set up correctly. Skip now to the section called “Health-Related Information About Computer Use,” later in this chapter.



See Chapter 4, “Installing System Software,” for information about installing system software. That section covers installation from floppy disks and from a compact disc (for computers with an internal CD-ROM drive).

△ **Important:** When installing system software, be sure to use the *Install Me First* floppy disk or compact disc you received with your computer. Check the label of the *Install Me First* disk to make sure it is for the Macintosh Qudra 840AV. △

- If you see anything else on your screen, or nothing at all, see the next section, “Problems Starting Up?”

- If you see a blinking question mark, you need to install system software on the computer’s hard disk. (System software is a set of programs the computer uses to start itself up.)



Problems starting up?

If you don't see anything on the screen, check these items to see if you can identify the problem.

- Is the computer firmly plugged into a power source? If it is plugged into a power strip, is the power strip turned on?
- Is the computer itself turned on?
- Is the keyboard cable connected correctly? (Don't disconnect the keyboard cable while your computer is on. You could damage your equipment.)
- Is the monitor power cord plugged in?
- Is the monitor turned on? (Check the power-on light on the front of the monitor.)
- Is the monitor's cable attached firmly to both the monitor and the computer?
- Is the brightness control (marked with the symbol ☰) on the monitor adjusted correctly?

Safety instructions

For your own safety and that of your equipment, always take the following precautions.

Turn off the computer completely and disconnect the power plug (by pulling the plug, not the cord) if any of the following conditions exists:

- the power cord or plug becomes frayed or otherwise damaged
- you spill something into the case
- your Macintosh Quadra 840AV is exposed to rain or any other excess moisture
- your Macintosh Quadra 840AV has been dropped or the case has otherwise been damaged
- you suspect that your Macintosh Quadra 840AV needs service or repair
- you want to clean the case (use only the recommended procedure described)

For additional safety:

- If you ever need to remove the cover of your computer, replace it before you use the computer.
- Never turn on your computer with any of the internal parts removed.

Be sure that you always do the following:

- Keep your Macintosh Quadra 840AV away from sources of liquids, such as wash basins, bathtubs, shower stalls, and so on.
- Protect your Macintosh Quadra 840AV from dampness or wet weather, such as rain, snow, and so on.
- Read all the installation instructions carefully before you plug your Macintosh Quadra 840AV into a wall socket.
- Keep these instructions handy for reference by you and others.
- Follow all instructions and warnings dealing with your system.

To clean the case, do the following:

1. Turn off the computer completely and then disconnect the power plug. (Pull the plug, not the cord.)
2. Wipe the surfaces lightly with a clean, soft cloth dampened with water.

▲ **Warning:** If you have a problem with your computer and nothing in the manuals that came with the computer solves the problem, consult the service and support information that came with your computer for information on how to contact an Apple-authorized service provider or Apple for assistance. ▲

▲ **Warning:** Electrical equipment may be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables. ▲

Health-related information about computer use

Muscle soreness, eye fatigue, and other discomforts and injuries sometimes associated with using computers can occur from performing any number of activities. In fact, misuse of the same muscles during multiple activities can create a problem that might not otherwise exist. For example, if you engage in nonwork activities that involve repetitive stress on the wrist—such as bicycling—and also use your computer's keyboard improperly, you may increase your likelihood of developing wrist problems. Some individuals are at greater risk of developing these problems because of their health, physiology, lifestyle, and general exposure to stress. Work organization and conditions, such as workstation setup and lighting, also play a part in your overall health and comfort. Preventing health problems is a multifaceted task that requires careful attention to the way you use your body every hour of every day.

The most common health effects associated with using a computer are musculoskeletal discomfort and eye fatigue. We'll discuss each area of concern below. For information about electric and magnetic emissions, look in the reference material that comes with your computer.

Musculoskeletal discomfort

As with any activity that involves sitting for long periods of time, using a computer can make your muscles sore and stiff. To minimize these effects, set up your work environment carefully, using the guidelines that follow, and take frequent breaks to rest tired muscles. To make working with your computer more comfortable, allow enough space in your work area so that you can change position frequently and maintain a relaxed posture.

Another type of musculoskeletal concern is repetitive stress injuries (RSIs), also known as cumulative trauma disorders (CTDs). These problems can occur when a certain muscle or tendon is repeatedly overused and forced into an unnatural position. The exact causes of RSIs are not totally understood, but in addition to awkward posture, such factors as the amount of repetition, the force used in the activity, the individual's physiology, workplace stress level, and lifestyle may affect the likelihood of experiencing an RSI.

RSIs did not suddenly arise when computers were invented; tennis elbow and writer's cramp, for example, are two RSIs that have been with us for a long time. Although less common than other RSIs, one serious RSI discussed more often today is a wrist problem called carpal tunnel syndrome, which may be aggravated by improper use of computer keyboards. This nerve disorder results from excessive pressure on the median nerve as it passes through the wrist to the hand.

This section offers advice on setting up your work area to enhance your comfort while you use your computer. Since the effects of repetitive movements associated with using a computer can be compounded by those of other work and leisure activities to produce or aggravate physical problems, proper use of your computer system must be considered as just one element of a healthy lifestyle.

No one, of course, can guarantee that you won't have problems even when you follow the most expert advice on using computer equipment. You should always check with a qualified health specialist if muscle, joint, or eye problems occur.

Eye fatigue

Eye fatigue can occur whenever the eyes are focused on a nearby object for a long time. This problem occurs because the eye muscles must work harder to view an object that's closer than about 20 feet (6 meters). Improper lighting can hasten the development of eye fatigue. Although eye fatigue is annoying, there's no evidence that it leads to permanent damage.

Whenever you're engaged in an activity that involves close-up work—such as reading a magazine, doing craft work, or using a computer—be sure to have sufficient glare-free lighting and give your eyes frequent rest breaks by looking up and focusing on distant objects. Remember to have your eyes examined regularly.

To prevent discomfort and eye fatigue:

- Arrange your work space so that the furniture is properly adjusted for you and doesn't contribute to an awkward working posture.
- Take frequent short breaks to give your muscles and eyes a chance to rest.

Arranging your office

Here are some guidelines for adjusting the furniture in your office to accommodate your physical size and shape.

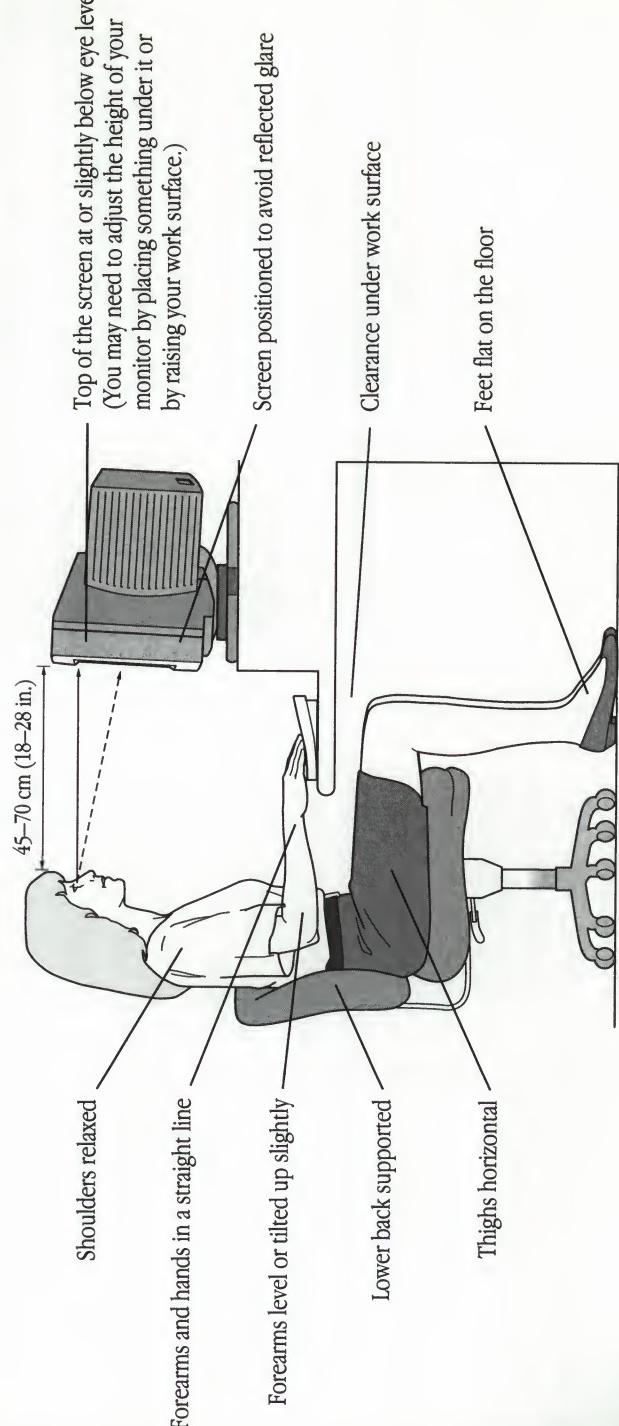
- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are horizontal and your feet flat on the floor.
- The back of the chair should support your lower back (lumbar region). Follow the manufacturer's instructions for adjusting the backrest to fit your body properly.

■ If you use a mouse, position the mouse at the same height as your keyboard. Allow adequate space to use the mouse comfortably.

- Arrange the monitor so the top of the screen is slightly below your eye level when you're sitting at the keyboard. The best distance from your eyes to the screen is up to you, although most people seem to prefer 18 to 28 inches (45 to 70 cm).
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows. You may want to use a tiltable monitor stand. The stand lets you set the monitor at the best angle for viewing, helping to reduce or eliminate glare from lighting sources you can't move.

- When you use the computer keyboard, your shoulders should be relaxed. Your upper arm and forearm should form an approximate right angle, with your wrist and hand in roughly a straight line.

You may have to raise your chair so your forearms and hands are at the proper angle to the keyboard. If this makes it impossible to rest your feet flat on the floor, you can use a footrest with adjustable height and tilt to make up for any gap between the floor and your feet. Or you may lower the desktop to eliminate the need for a footrest. Another option is to use a desk with a keyboard tray that's lower than the regular work surface.



Avoiding fatigue

- Change your seated position, stand up, or stretch whenever you start to feel tired. Frequent short breaks are helpful in reducing fatigue.
- Use a light touch when typing or using a mouse and keep your hands and fingers relaxed.
- Some computer users may develop discomfort in their hands, wrists, or arms after intensive work without breaks. If you begin to develop chronic pain or discomfort in your hands, wrists, or arms, consult a qualified health specialist.
- Allow adequate workspace so that you can use your keyboard and mouse comfortably. Place papers or other items so you can view them easily while using your computer. A document stand may make reading papers more comfortable.
- Eye muscles must work harder to focus on nearby objects. Occasionally focus your eyes on a distant object, and blink often while you work.
- Clean your screen regularly. Keeping the screen clean helps reduce unwanted reflections.

What's next?

You've completed setting up your computer. Continue with one of the following steps:

- If you are new to the Macintosh, continue to Chapter 2, "Learning the Basics," to learn more about how to use your computer.
- Read "Turning the Computer Off," later in this book, for important information.
- Turn to Chapter 5, "The Macintosh Quadra 840AV System," for an overview of major features of your computer.
- Read Part II of this book, "Advanced Features of Your Macintosh Quadra 840AV," for tips on how to use some of the special capabilities of your computer.
- Start your own work. Consult the *Macintosh User's Guide* or this book if you have questions about your computer.
- The Macintosh Quadra 840AV comes with a tour and a tutorial to help you start using your computer as quickly as possible.
- The *Macintosh Basics* tour teaches the most basic skills you need to master before you can use your computer.
- The "Learning Macintosh" section of your *Macintosh User's Guide* is a tutorial that reinforces basic skills taught in the tour, and teaches a few additional skills you'll find helpful as you become more proficient.

Take the *Macintosh Basics* tour first.

Chapter 2

Learning the Basics

Taking the *Macintosh Basics* tour

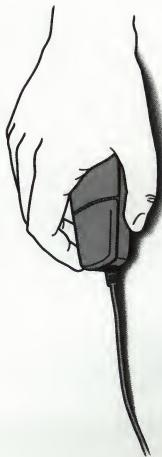
Your *Macintosh Basics* tour is installed on the hard disk that's inside your computer.

To take the tour, follow these steps:

Make sure your computer is turned on. If the screen is dark, try adjusting the brightness (as described in "Problems Starting Up?" earlier in this book) until you see the Macintosh desktop on your screen.

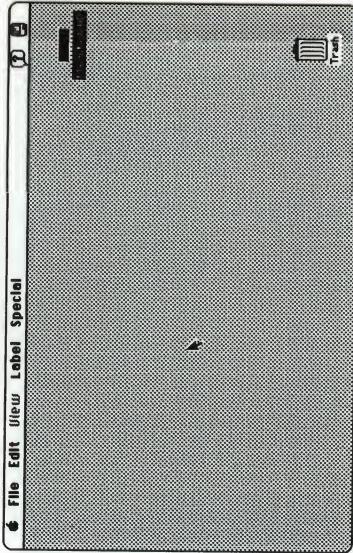
1. Use your hand to slide the mouse along the table.

Hold the mouse as shown, cable pointing away from you. Slide it so that it stays in contact with the table. Don't press the mouse button. Watch the arrow (►) on your screen to see if it moves when you move the mouse.



2. Notice that the arrow (►) moves in the direction you move the mouse.

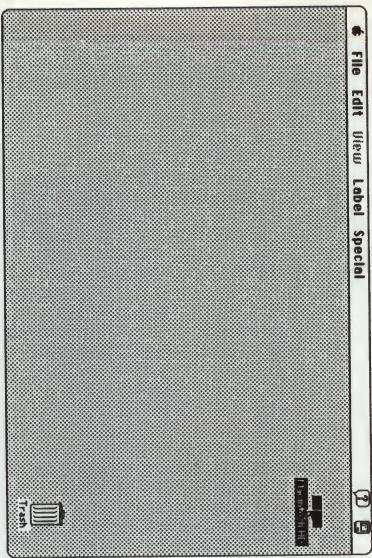
If the arrow doesn't move on the screen, make sure that the cable connecting the mouse to the keyboard is secure and that your mouse is positioned as shown in the picture. (Don't disconnect the cable while your computer is on; you could damage your equipment.)



continues ▾

3. Move the mouse so that the arrow is over the picture labeled “Macintosh HD.”

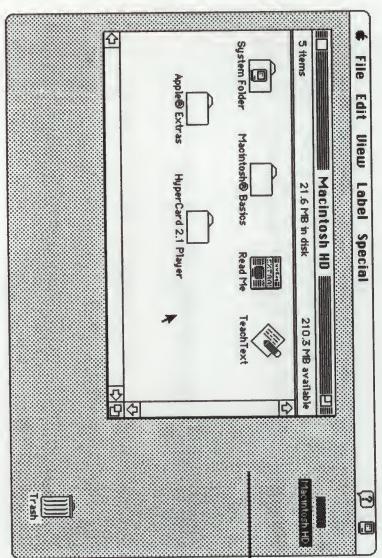
Make sure the tip of the arrow is over the picture, not over the words “Macintosh HD.”



4. Being careful not to move the mouse, click the mouse button twice in quick succession.

Now your screen should look like the picture shown in this step. If it doesn't, try steps 3 and 4 again, paying special attention to the following:

- Make sure the tip of the arrow is touching the picture, not the words beneath it.
- Be sure to press the mouse button twice.
- Try pressing twice more quickly and be careful not to move the mouse while you press.

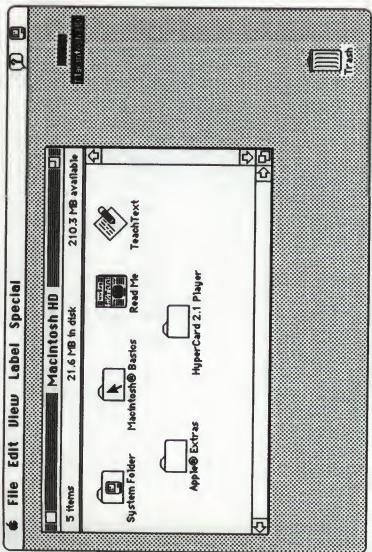


The items in this illustration may not exactly match those on your screen.

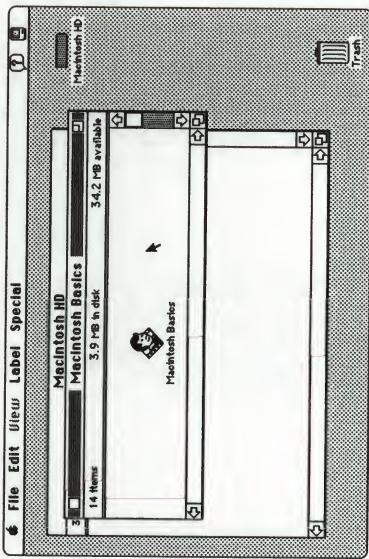
- 5. Move the mouse to place the tip of the arrow inside the picture of the folder labeled “Macintosh Basics.”**

- 6. Being careful not to move the mouse, press the mouse button twice in quick succession.**

Now your screen should look like the following illustration:



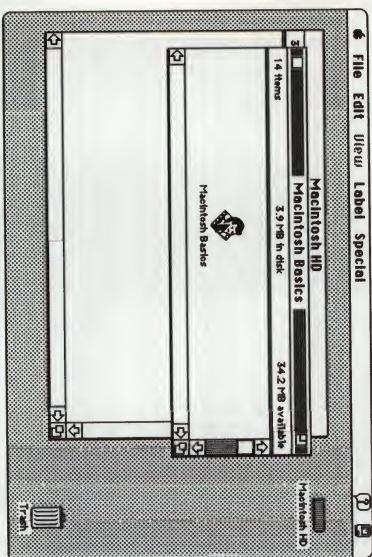
Make sure the tip of the arrow is over the picture, not over the words “Macintosh Basics.”



continues ▲

7. Move the mouse so that the arrow is over the picture of the man labeled "Macintosh Basics."

Make sure the tip of the arrow is over the picture of the man, not over the words "Macintosh Basics."



8. Press the mouse button twice in quick succession.

Now your screen should look like the following picture:



9. Follow the instructions on the screen and work through the tour.

When you finish the tour, continue with "Turning the Computer Off." Then turn to the "Learning Macintosh" section of your *Macintosh User's Guide* and begin the learning exercises there. When you are comfortable using the Macintosh, read Part II of this book to learn how to make full use of your Macintosh Quadra 840w computer's advanced features.

Turning the computer off

If you plan to continue learning about how to use your Macintosh or if you plan to continue working, don't turn off your computer yet. When you are ready to stop working, follow these steps:

- **Use the mouse to choose the Shut Down command from the Special menu.**

Choosing Shut Down readies the hard disk for a fast restart next time you turn on the computer. It also prompts you to save any unsaved work on a disk before turning the power off.



(You can also turn off the computer by pressing the Power key on the keyboard. You'll see a message asking you to confirm that you want to shut down. To turn off the computer, click Shut Down. If you don't want to turn off the computer, click Cancel.)

To turn on the computer again, press the Power key on the keyboard or use the on/off switch on the front of the computer.

△ **Important:** Be sure to shut down the computer if you need to do any of the following:

- move the computer
- attach other equipment to the computer
- unplug the computer
- leave it for an extended period of time △

Keep in mind that the computer uses a small amount of power even when it is turned off.



Chapter 3

Connecting Other Equipment

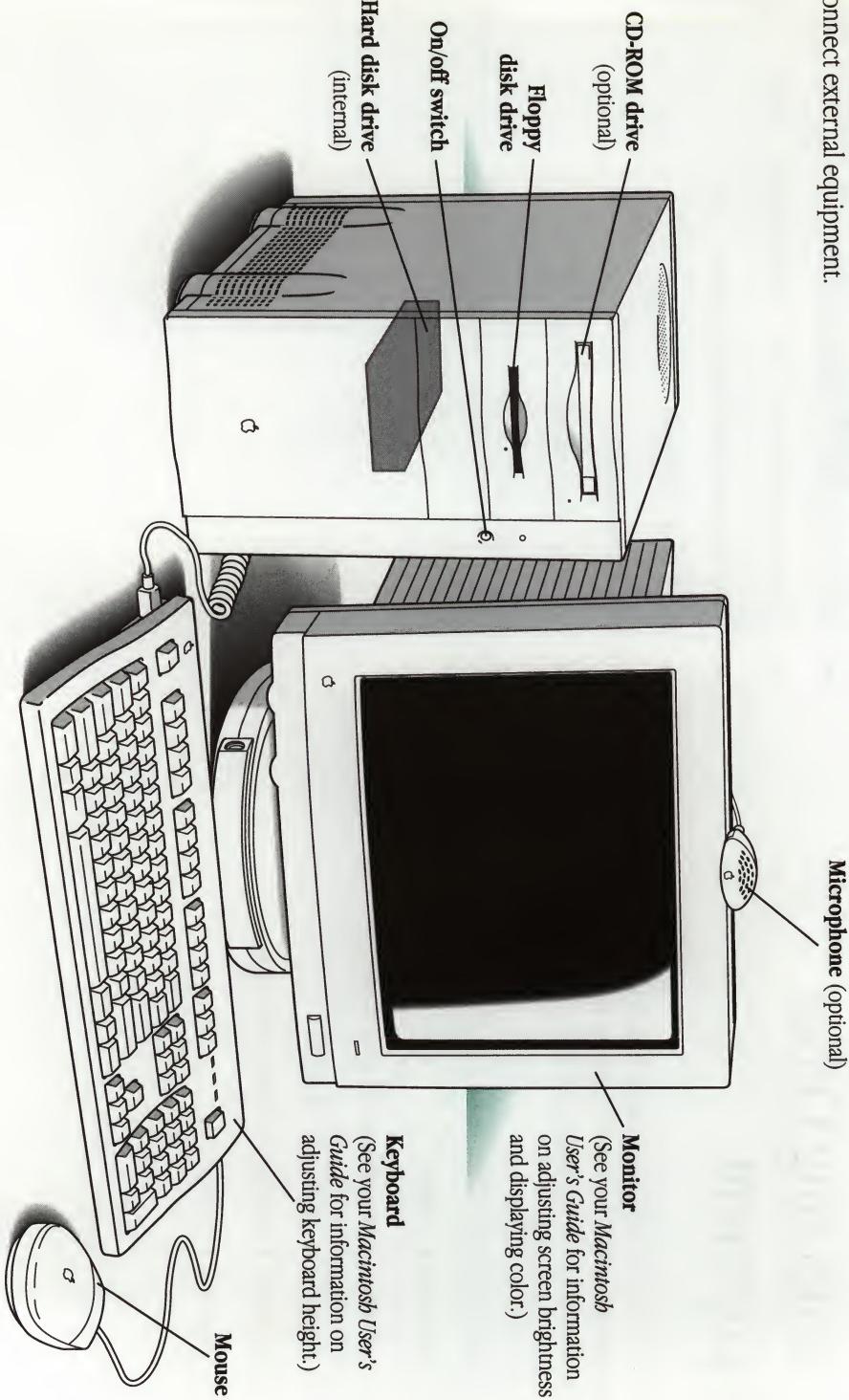
This section provides information and instructions for connecting external equipment to your Macintosh, as well as installing an expansion card and expanding the computer's memory. Topics covered here include

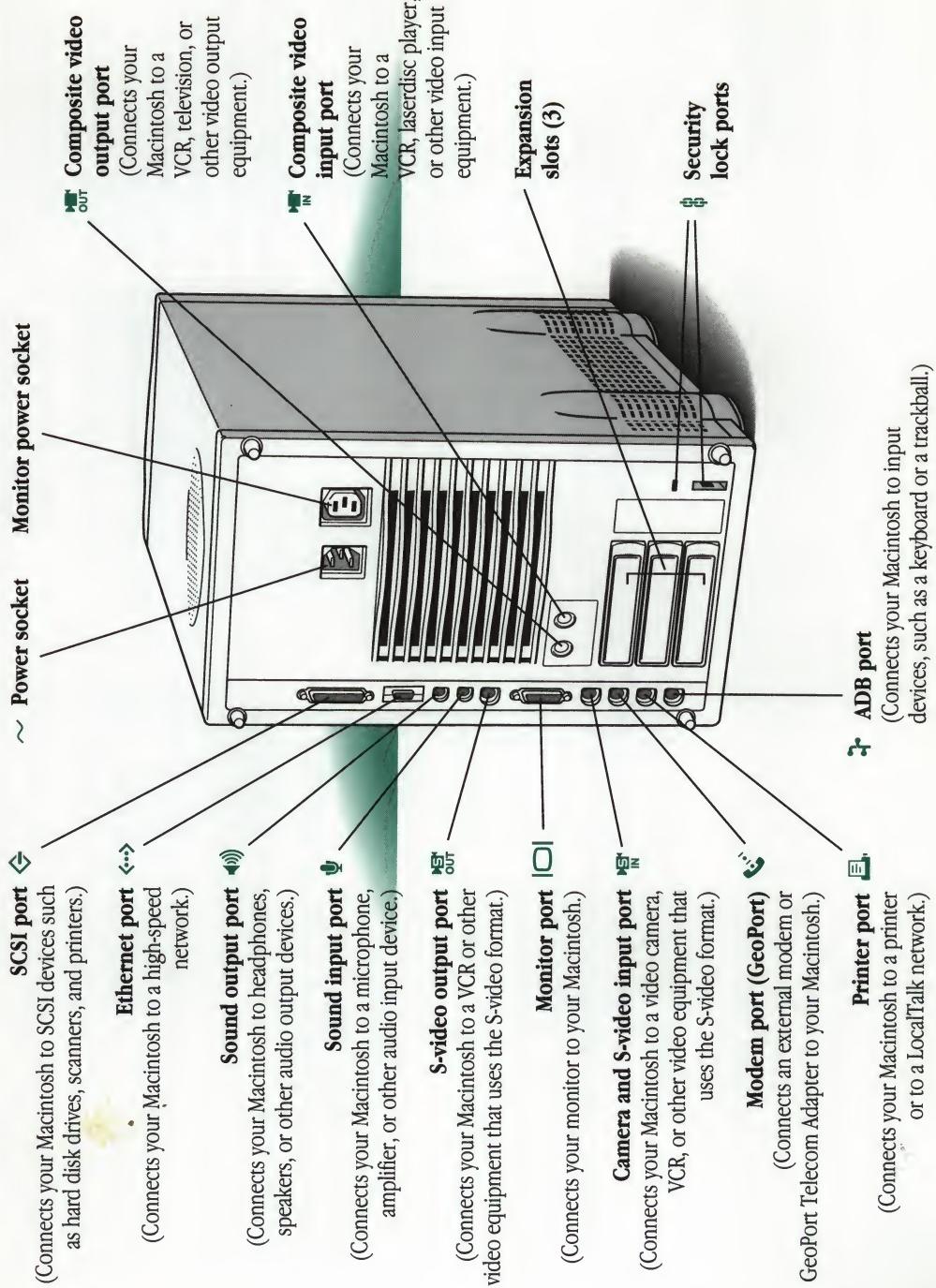
- Your computer at a glance
- Connecting a printer
- Connecting a hard disk or other SCSI device
- Connecting an additional monitor
- Connecting a trackball or other input device
- Connecting a microphone

- Connecting audio or video equipment
- Connecting the GeoPort Telecom Adapter or a modem
- Connecting to a high-speed network
- Installing an expansion card
- Expanding memory
- Installing other internal devices
- Attaching a security lock

Your Computer at a Glance

The illustrations on this page and the next page provide a detailed look at your Macintosh hardware, including the ports you use to connect external equipment.





Expanding your Macintosh Quadra 840AV

You can connect a variety of equipment to the Macintosh Quadra 840AV and you can enhance the computer's capabilities by adding expansion cards and random-access memory (RAM).

When connecting any component to the computer, be sure to follow the instructions provided with the equipment, as well as the steps and guidelines in the sections that follow. The *Macintosh User's Guide* that came with your computer also contains instructions for connecting certain types of equipment; those instructions are referred to in this book.

Connecting a printer

Complete instructions for connecting a printer are provided in the *Macintosh User's Guide* and the manual for your printer.

Connecting a hard disk or other SCSI device

Complete instructions for connecting a hard disk or other SCSI device are provided in the *Macintosh User's Guide*. These types of devices include

- a hard disk or cartridge hard disk drive
- a CD-ROM drive
- a scanner
- certain laser printers

Connecting an additional monitor

You can connect an additional monitor to your computer by installing an expansion card designed for a monitor. See "Installing an Expansion Card" later in this chapter for instructions.

Follow the instructions that came with your monitor and those in "Connecting a Monitor" in Chapter 1 to connect the monitor.

When you connect an additional monitor:

- Make sure that the ventilation openings on the computer and the monitor are clear and unobstructed.
- If there is interference on your screens or on a television or radio near your Macintosh, move the affected equipment farther apart.

Connecting a trackball or other input device

You can connect an alternative input device, such as a trackball or graphics tablet, in the same way that you connected the keyboard and mouse when setting up your Macintosh. Complete instructions for connecting a trackball or other input device are provided in the *Macintosh User's Guide*.

Connecting a microphone

Your computer has a sound input port, which you can use to connect a microphone (optional). You can use the microphone to give spoken commands to your Macintosh Quadra 840AV and to record your voice or other sounds.

△ **Important:** You must use the Apple PlainTalk Microphone, which is designed specifically for the Macintosh Quadra 840AV. This microphone is included with some Quadra 840AV models and is available from an Apple-authorized dealer. △

To connect the microphone.

- **Plug the microphone's connector into the sound input port (marked with the symbol ♫) on the back of the computer.**

See "Connecting Stereo Audio Equipment" later in this book for more information about the sound input port.

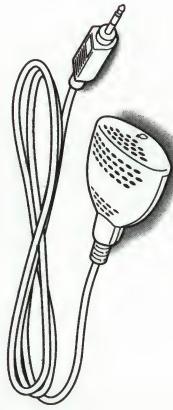
Connecting video or audio equipment

You can connect a variety of video and stereo audio equipment to your Macintosh Quadra 840AV. For information and instructions, see "Using Video With Your Macintosh" and "Using Stereo Audio With Your Macintosh" in Part II of this book.

Connecting a GeoPort Telecom Adapter or modem

The Macintosh Quadra 840AV has extensive telecommunications capabilities, including an enhanced telecommunications port, the GeoPort. By connecting the GeoPort Telecom Adapter, designed specifically for use with the GeoPort, you can take advantage of your computer's integrated signal processing. The GeoPort Telecom Adapter comes with communications and fax software and can be purchased from an Apple-authorized dealer.

You can also connect a standard modem to the GeoPort, using a standard modem cable. A standard modem cannot take advantage of the computer's advanced signal-processing features, however.

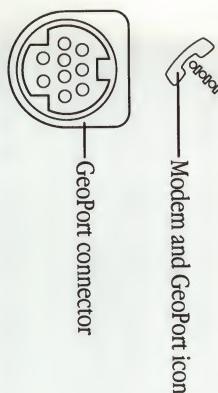


If you use the Apple AudioVision 14 Display as your monitor, you don't have to connect the microphone. This monitor has the Apple PlainTalk Microphone built in.

The Apple PlainTalk Microphone and the software needed for using spoken commands are included with some models. If you don't have them, they are available from an Apple-authorized dealer.

Follow the instructions in the *Macintosh User's Guide*, along with the instructions that came with your adapter or modem, when connecting such a device to your computer.

The GeoPort's connector on your Macintosh is slightly different from the illustration in the *Macintosh User's Guide* (the GeoPort has nine openings, while the standard modem port has eight openings). GeoPort has the same icon (📞) as the modem port shown in the user's guide, however.



Connecting to a high-speed network

The Macintosh Quadra 840W comes with built-in Apple Ethernet for connecting to high-speed Ethernet networks. With the appropriate Apple Ethernet Media Adapter (or another compatible adapter), you can connect your Macintosh to an existing Ethernet network, using thin coax, 10BASE-T twisted pair, thick coax, or other standard cables. (See your authorized Apple dealer for more information on Apple Ethernet Media Adapters.)

△ **Important:** The Macintosh Quadra 840W supports EtherTalk Phase 2 (AppleTalk Phase 2 protocols for Ethernet networks) and TCP/IP (via MacTCP). The Macintosh Quadra 840W does not support EtherTalk Phase 1 (AppleTalk Phase 1 protocols for Ethernet networks). △

Once you've connected to an Ethernet network, you need to specify Ethernet in the Network control panel. See the networking chapter of the *Macintosh User's Guide* for instructions.

By installing the appropriate expansion card, you can connect your Macintosh to a different type of network, such as a token ring network. See "Using Network Services" in Part II of this book for more information about network connections.

Installing an expansion card

You can install printed circuit boards (called cards) in the computer for video and graphics applications, networking and communications, additional processing power, and other purposes. The cards fit into connectors, called expansion slots, inside the computer.

The Macintosh Quadra 840AV has three expansion slots, which are designed to accept NuBus™ cards. One of these three slots is also designed to accept a card that contains the Digital Audio and Video (DAV) connector. This connector provides direct access to the specialized digital video and audio hardware built into the main circuit board of the Macintosh Quadra 840AV.

► **Warning:** Install an expansion card only in the slot designed to accept it. Failure to do so could damage the card and your computer. NuBus cards fit in any NuBus slot, but a card with another special type of connector, such as the DAV card, is often designed only for a specific Macintosh model and for a specific slot in that computer. ▲

Like all electronic components, expansion cards generate heat. If you install several cards in your Macintosh, leave as much room as possible between cards and between cards and other internal components.

△ **Important:** Some cards may need to be installed by an authorized Apple service provider. Check the documentation for the card to determine whether it requires installation by a technician. △

NuBus power requirements

The combined power consumption of all installed NuBus cards must not exceed the limits specified for your Macintosh model. If you have two or three NuBus cards installed or are concerned about the amount of power consumed by a particular card, make sure that your NuBus cards' power consumption is within limits specified in the booklet *Technical Information for the Macintosh Quadra 840AV*.

Installing a NuBus card or a DAV card

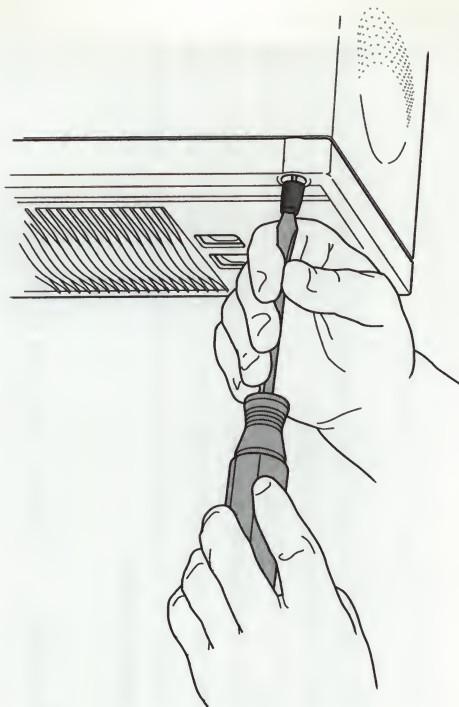
Follow these steps to install a NuBus expansion card or a DAV card.

1. Turn off the computer.

Make sure the computer is plugged in but turned off.

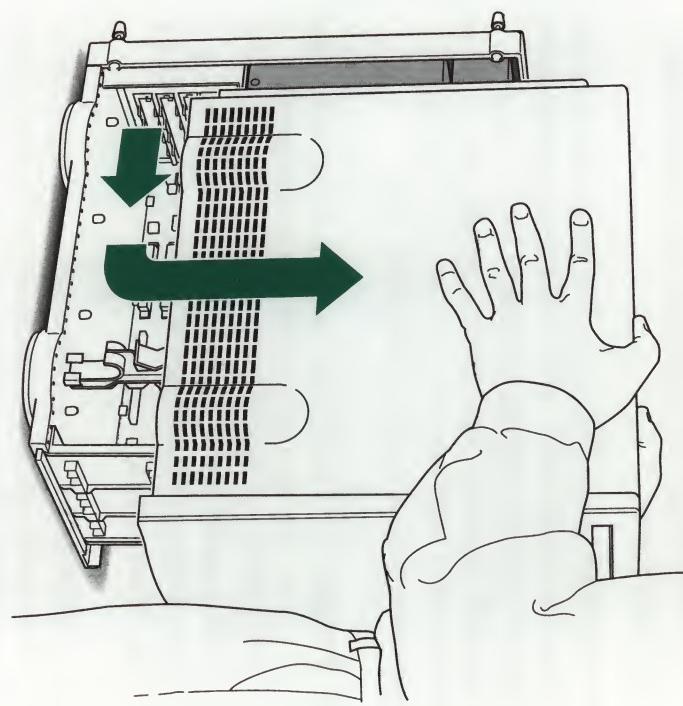
2. Loosen the four large screws at the corners of the back panel.

Do not remove either the screws or the back panel.

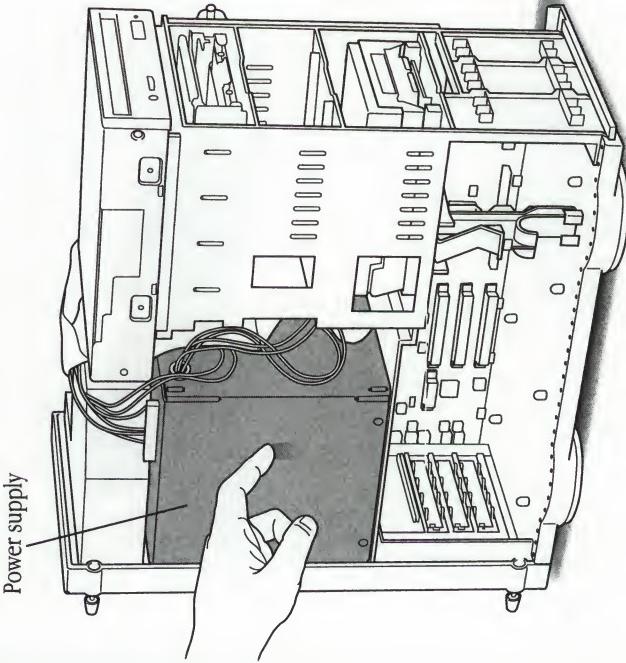


3. Remove the cover from the computer

Slide the cover away from the back panel an inch or two. Then raise the cover straight up and off the computer.



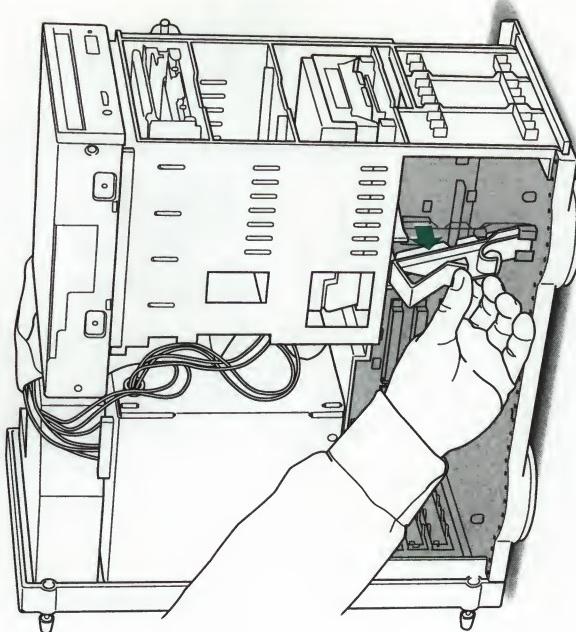
- 4. Touch the metal part of the power supply case inside the computer to discharge any static electricity that might be on your clothes or body.**
- Always do this before you touch any parts or install components inside the computer.



5. Remove the expansion card clip.

Grasp the clip handles with your thumb and forefinger and squeeze.

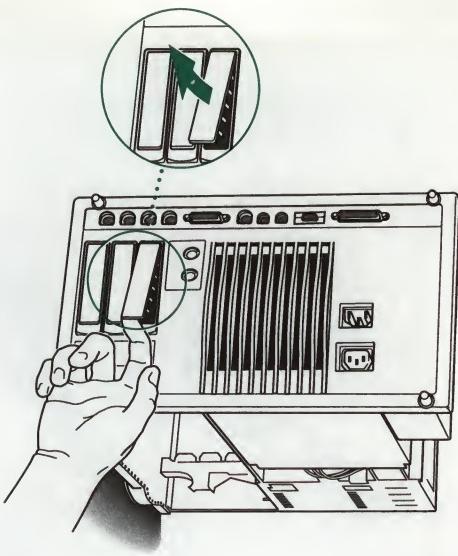
Pull the clip straight out.



continues ▾

6. Pull out the plastic cover plate behind the expansion slot you want to use, and set the cover plate aside.

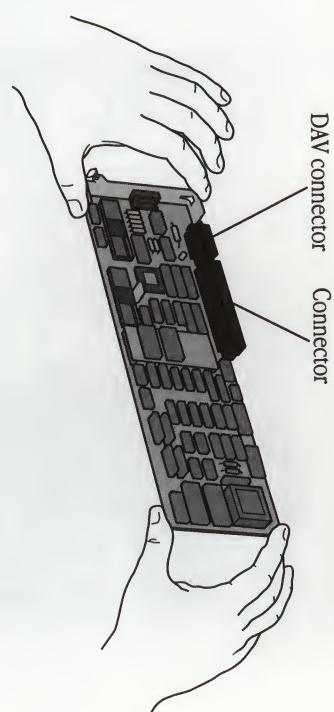
If you are installing a DAV card, you must use the uppermost slot (the one closest to the center of the computer).



7. Remove the card from its static-proof bag.

Hold the card by its top edge to avoid touching the connector on the bottom of the card.

(The card pictured below contains the standard NuBus connector and the DAV connector.)



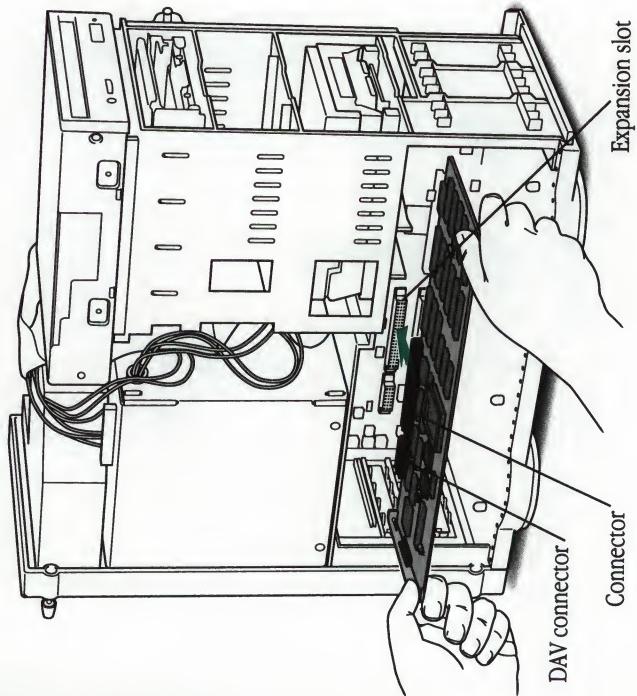
8. Align the connector and card with the expansion slot.

△ **Important:** If you are installing a card for the DAV connector, align the card with the uppermost slot. This slot has both a NuBus connector and a DAV connector. △

9. Press the card firmly until the connector is seated.

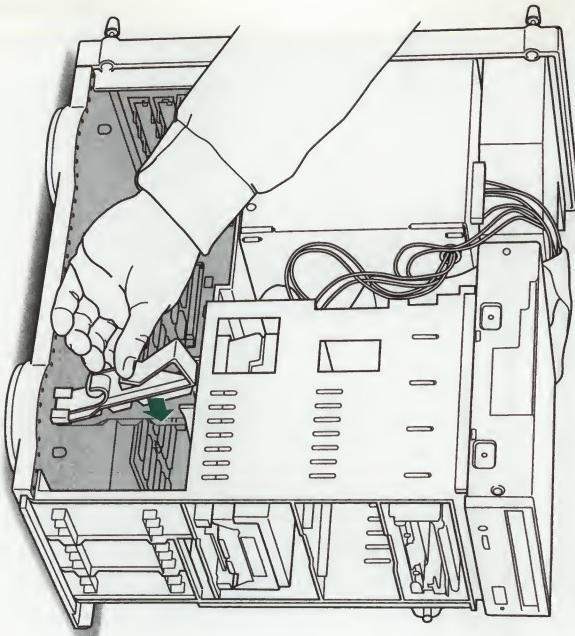
- Don't force the card. If you meet a lot of resistance, pull it out and try again.
 - To see if the card is properly connected, wiggle it gently. If it resists and stays in place, it's connected.
- If you have other cards to install, put them in now by repeating steps 6 through 9.

continues ▲



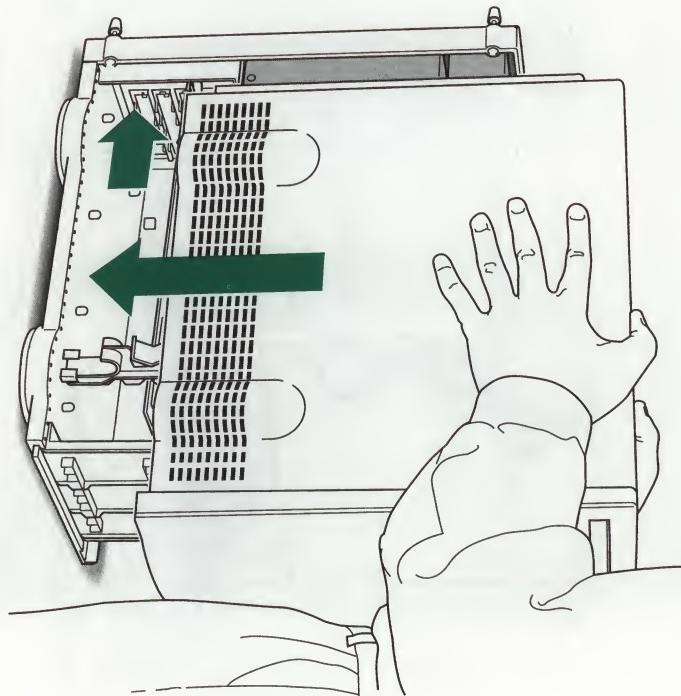
10. Replace the expansion card clip.

Put the bottom of the clip in place first. Make sure the edge of the expansion card fits into one of the slots on the clip.



11. Replace the cover on the computer.

Lower the cover all the way down onto the case. Push the cover back until it touches the back panel.



12. Tighten the screws on the back panel.

Expanding memory

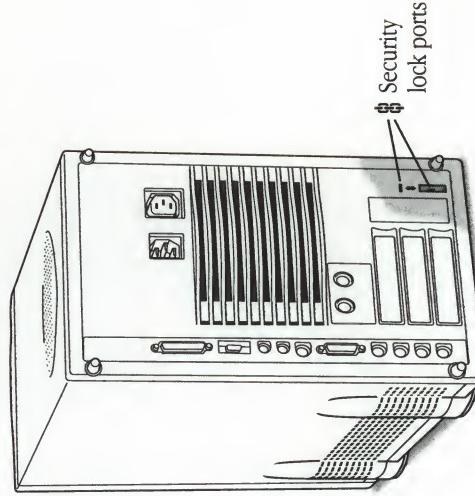
The random-access memory (RAM) and the memory used to display images on the screen (called VRAM) in your computer can be expanded by adding Single InLine Memory Modules (or SIMMs) to those already installed or exchanging installed modules for ones that have greater storage capacity.

Make sure that SIMMs you purchase for memory expansion are the correct ones for your Macintosh. See the booklet *Technical Information for the Macintosh Quadra 840AV* for details about expanding both RAM and VRAM.

► **Warning:** Apple recommends that additional memory on the main circuit board should be installed by an Apple-authorized service provider or technician. Modification of the circuit board by anyone except a qualified technician voids your warranty and could damage your computer. ▲

Attaching a security lock

You can attach a security lock to your Macintosh Quadra 840AV to prevent theft. The back panel has two built-in ports for different sizes of security locks.



Follow the instructions supplied with the security lock to attach it to your computer.

Installing other internal devices

The Macintosh Quadra 840AV can have up to four internal storage devices, including a floppy disk drive, a CD-ROM drive, and a hard disk drive (several capacities available). See your Apple-authorized dealer for information about adding internal equipment to your Macintosh Quadra 840AV.



Installing System Software

The accessory kit that came with your Macintosh contained either a set of floppy disks that with the system software on them, or a compact disc (CD) labeled *CD InstallMeFirst*. You can use the floppy disks or the CD to install the system software on your Macintosh if you need to do so.

- ❖ *Do you need to install system software?* Your Macintosh came with all the necessary system software installed and ready to use. Unless a problem develops later, you don't need to reinstall the software. ❖

Using floppy disks to install system software

Complete instructions for installing the system software from floppy disks are provided in the *Macintosh User's Guide*. See "Installing System Software" in that guide for details.

Using the CD to install system software

The disc labeled *CD InstallMeFirst* takes the place of a set of floppy disks containing system software. This CD serves as a permanent backup source for important software. In addition, the CD simplifies the process of reinstalling system software (should that ever become necessary).

This section describes the contents of the *CD InstallMeFirst* disc and explains how you can

- Use the *CD InstallMeFirst* disc as your startup device
- Reinstall system software
- Create a set of floppy disks containing a copy of the system software from your CD

Which manual should you use?

If you need to use the *CD InstallMeFirst* to reinstall Macintosh system software, use the instructions here rather than those contained in the *AppleCD 300/300i User's Guide* and the *Macintosh User's Guide*.

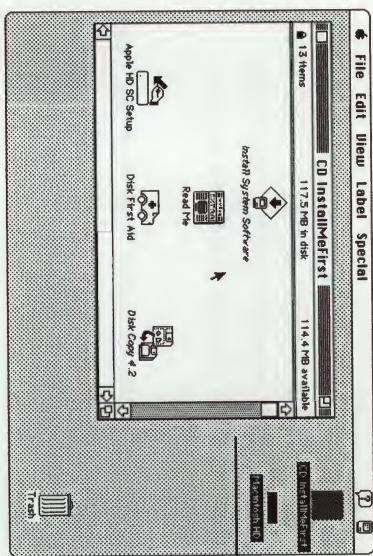
Using the CD as your startup device

The procedure for starting from the *CD InstallMeFirst* varies depending on the condition of the system software on your hard disk. Before you know which procedure to use, you must turn on your Macintosh.

△ **Important:** Do not use the *CD InstallMeFirst* as an everyday startup device. Use it instead to reinstall or make a copy of your system software files. △

If you see a blinking question mark on your screen

The blinking question mark means your Macintosh is unable to find usable system software on your hard disk.



The items in this illustration may not exactly match those on your screen.

1. Make sure the *CD InstallMeFirst* disc is in the caddy.
2. Insert the CD caddy into the CD-ROM drive.

Your Macintosh recognizes the CD as a startup disk, and in a few seconds the desktop below appears.

If you see the Macintosh desktop

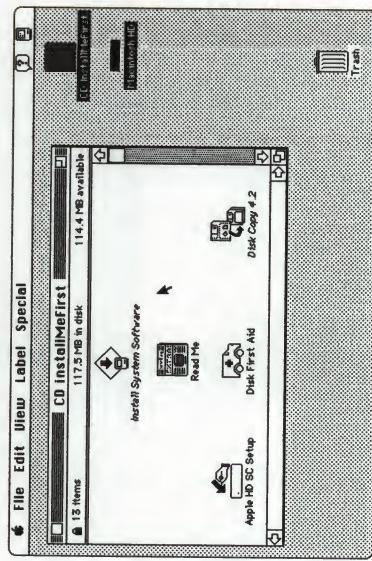
1. Make sure the CD *InstallMeFirst* disc is in the caddy.
2. Insert the CD caddy partway into the CD-ROM drive.

Leave the disc and caddy protruding about two inches from the drive. This way you are ready to insert the disc all the way into the drive after you restart the computer in step 3.

3. Choose Restart from the Special menu.
4. Insert the CD caddy all the way into the CD-ROM drive.
5. Press and hold down the **⌘**, Shift, Option, and Delete keys.

6. As soon as the smiling Macintosh appears on your screen, release the keys.

Your Macintosh recognizes the CD as a startup disk, and in a few seconds the desktop below appears.

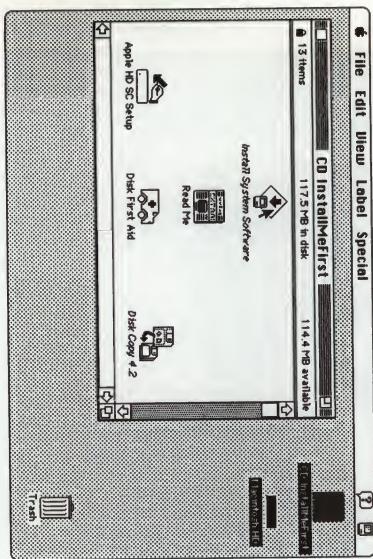


Reinstalling system software

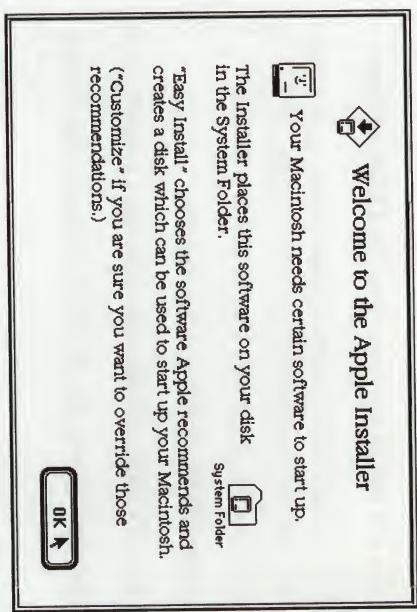
Your Macintosh came with all the necessary system software installed and ready to use. Occasionally, however, system software can develop problems and need to be replaced.

Before you begin, you must start your Macintosh from the *CD InstallMeFirst* disc. For instructions, see the previous section, "Using the CD as Your Startup Device."

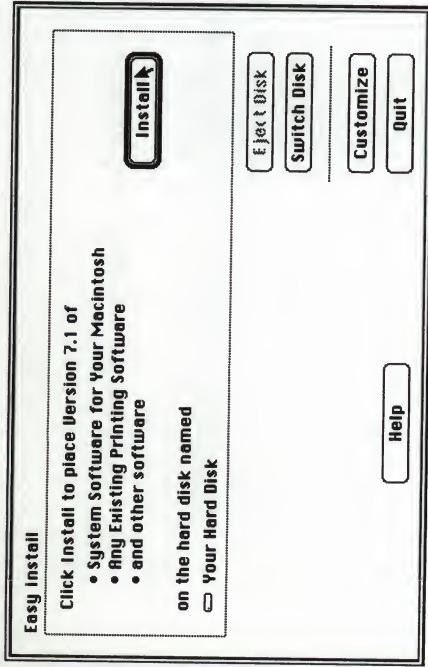
1. On the desktop, click **Install System Software**.



2. In the Welcome dialog box that appears, click **OK**.



3. In the Installer dialog box, click Install.



Custom installations

The Installer has a “custom” feature that allows you to choose specific items from a list and have them installed. If you click the Customize button in the Installer dialog box, you’ll see the list. Hold down the Shift key and click the items you want. Then click Install.

If you use Easy Install, you don’t need a custom installation.

The Easy Install status box appears and keeps you informed of progress during installation.

4. When you see a message reporting that the installation was successful, click Quit.

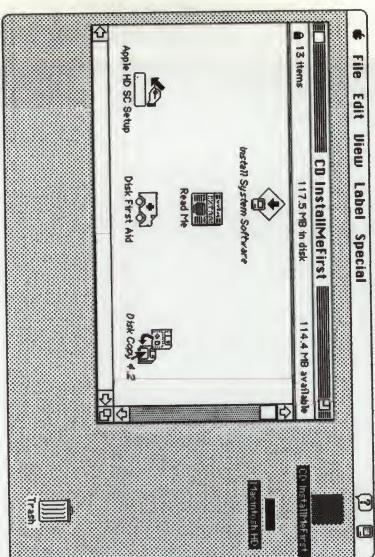
That’s it. You’ve installed Macintosh system software on your startup disk.

Copying system software on floppy disks

You can copy the Macintosh system software from the CD *InstallMeFirst* disc to floppy disks. You use the Disk Copy program to make a copy of the system software. To copy the software, you'll need six or more 1.4 MB floppies.

Before you begin, you must start your Macintosh from the *CD InstallMeFirst* disc. For instructions, see "Using the CD as Your Startup Device" earlier in this chapter.

1. Double-click the Disk Copy icon to start the program.

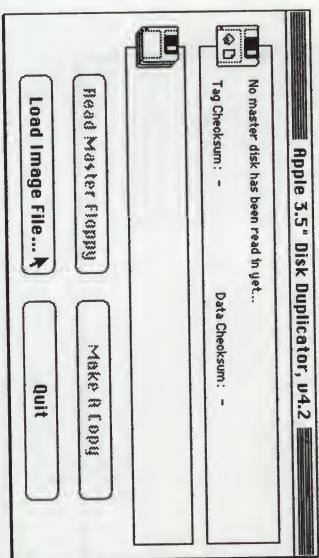


The program displays an explanatory dialog box.

2. Click anywhere on the screen to remove the explanatory dialog box.

The explanation clears and the Disk Copy program's options appear.

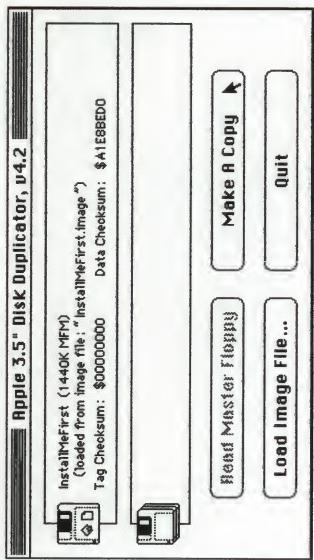
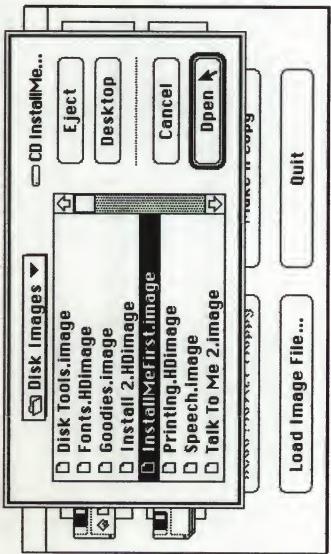
3. In the dialog box, click Load Image File.



Another dialog box appears, in which you can select the disk image that you want to copy. Each image file contains the software you need to create a floppy backup disk.

4. Click the name of a disk image, then click Open.

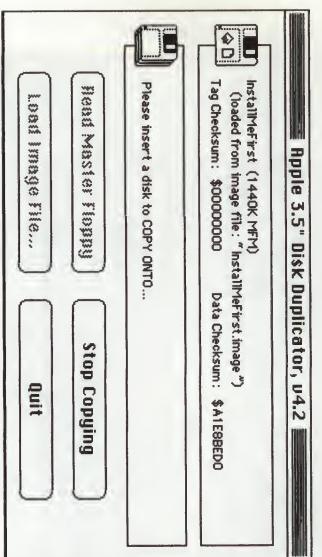
5. Click Make A Copy.



continues ▾

In a few moments a message appears in the upper part of the program's window, indicating that the disk image has been loaded.

- 6. When you see a message telling you to insert a disk, insert a floppy disk.**



If an alert box appears asking whether you want to replace the contents of the disk, click Duplicate.

- 7. When you see a message telling you that the disk was duplicated successfully, click Load Image File to copy another disk image or click Quit to leave the program.**

The program ejects the disk when it has copied the image.

- 8. Repeat steps 3 through 5 for each disk image until you have copied all the disk image files.**

If you don't need all of the files, copy just the ones you want.

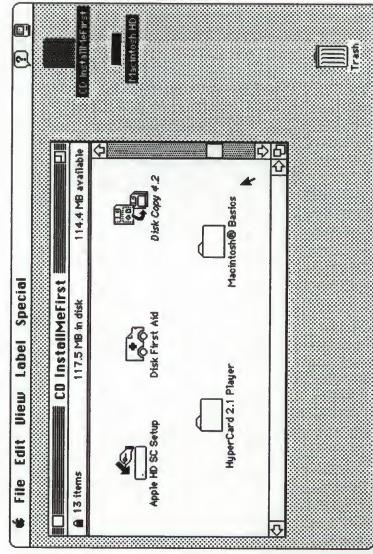
Store the backup disks in a safe place.

Copying the *Macintosh Basics* tour

Macintosh Basics is a hands-on tour of the Macintosh desktop that teaches important skills for using the computer. Your Macintosh came with the tour already installed on your hard disk, but if you need another copy, you can get one from the *CD InstallMeFirst*.

1. **Make sure the *CD InstallMeFirst* disc is in the caddy.**
2. **Insert the CD caddy into the CD-ROM drive.**
3. **Locate the Macintosh Basics folder in the disc's window.**

You may have to scroll or resize the window to find the folder.



4. **Click the Macintosh Basics folder to select it and drag it to your hard disk.**

You now have a copy of the tour on your hard disk.



Part II

Advanced Features of Your Macintosh Quadra 840AV

Chapter 5 The Macintosh Quadra 840AV System

Chapter 6 Using Video With Your Macintosh

Chapter 7 Using Stereo Audio With Your Macintosh

Chapter 8 Using Automatic Power On or Off

Chapter 9 Using Network Services

Part II of this book provides the information you need to use the advanced features of your computer. It includes instructions for new control panels and some other items included with the system software for the Macintosh Quadra 840AV. These advanced features and new software include

- Using video
- Using stereo audio
- Setting the computer to turn on or off automatically
- Using network services

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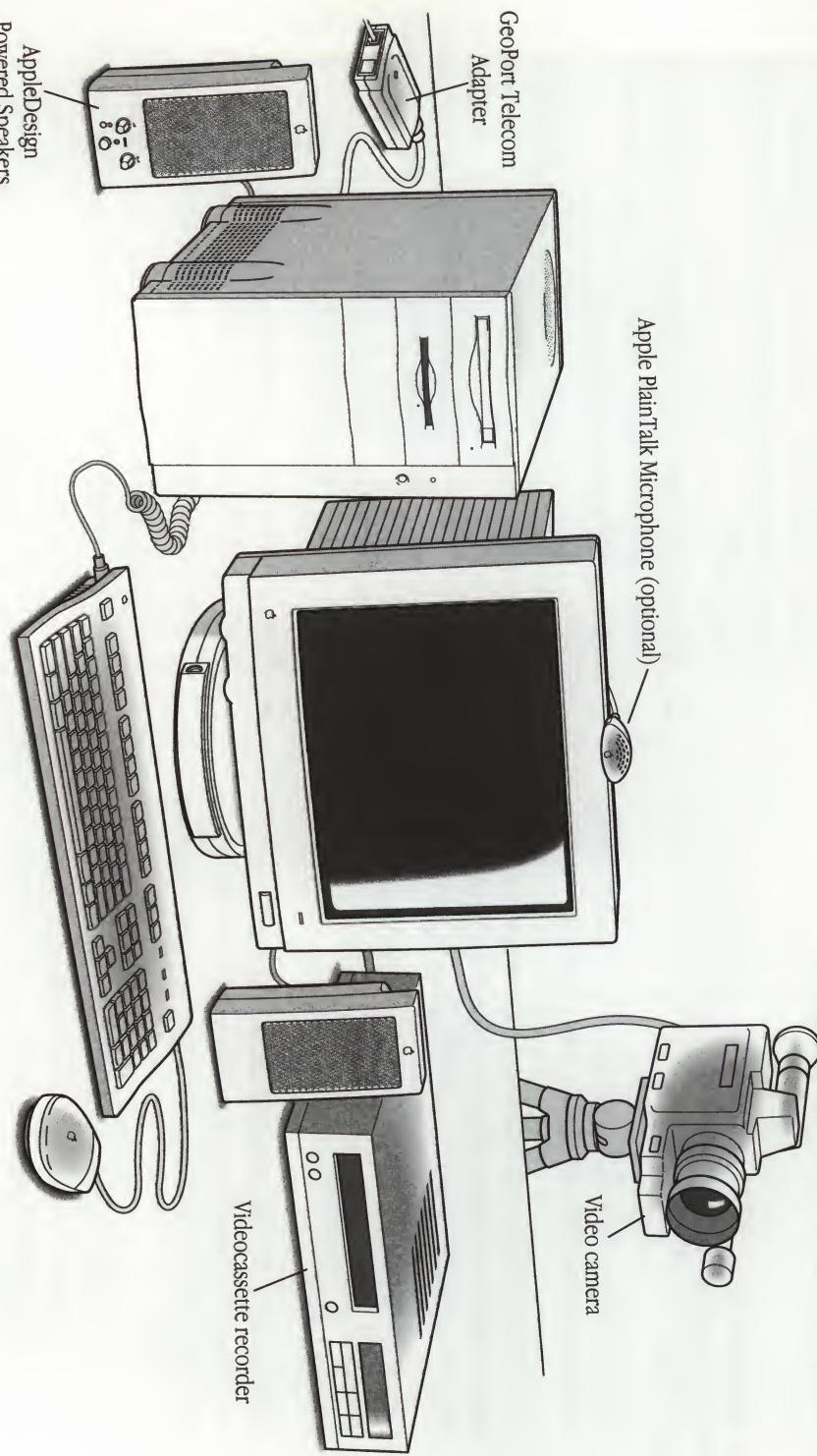
The Macintosh Quadra 840AV System

The Macintosh Quadra 840AV provides advanced features and broad expandability. Among the advanced features of this computer are

- Enhanced speed and performance, by means of a Motorola 68040 microprocessor with clock speed of 40 MHz
- Real-time processing of stereo sound and telecommunications data, by means of a digital signal processor (DSP) that operates concurrently with the 68040 microprocessor
- Integrated telecommunications technology that allows connection to a telephone line, by means of the GeoPort Telecom Adapter
- Sophisticated video input capabilities, permitting direct connection of a camera, videocassette recorder (VCR), or videodisc player, for digitizing and display of video images on the monitor
- Sophisticated video output capabilities, allowing direct connection of a VCR or television, for recording or display of the computer's images on a television
- Enhanced video and graphics display capabilities, supporting up to thousands of colors on a 16" RGB monitor
- Speech-recognition technology, which allows you to give English-language voice commands to your Macintosh (optional microphone and software may be required with some models)
- Text-to-speech capability, which provides high-quality voice synthesis so that programs can deliver spoken versions of text (optional software may be required)
- High-speed local area network capability by means of an integrated Ethernet port
- Versatile internal storage capability, permitting up to four drives, including floppy disk, CD-ROM, and internal hard disk
- Twelve input/output ports, including video, stereo (16-bit audio, monitor, printer, SCSI, modem, and Ethernet
- Three NuBus slots for expansion cards, all with enhanced data-transfer rates, and a specialized digital audio-video expansion slot (aligned with one of the NuBus slots)
- RAM expansion up to 128 MB of dynamic RAM, and video RAM (VRAM) expansion up to 2 MB for enhanced display of colors

Example of a Macintosh Quadra 840AV system

The Macintosh Quadra 840AV also offers versatile expandability so that you can create a powerful system that combines computing, video, stereo audio, and telecommunications.



Chapter 6

Using Video With Your Macintosh

You can connect video equipment to the Macintosh Quadra 840AV; display, edit, and store video images on the computer; and view or record the computer's images on a television or videocassette recorder. This section provides the information you need to

- Connect video equipment for input
- Connect video equipment for output
- Display video images on the monitor
- Capture single frames from video equipment
- Display the computer's images on a television
- Record the computer's images on a videocassette recorder
- Adjust settings for video input or output

Connecting video equipment

Your Macintosh can display and use video images from a variety of sources. To view video on your monitor, you connect a video device to one of the video input ports on the computer.

The Macintosh Quadra 840AV can work with two major video formats:

- Composite video
- S-video

The computer has one input and one output port for each format (a total of four ports).

Composite video is the more common of these two formats. Televisions, most videocassette recorders (VCRs), and laserdisc players (LDPs) use the composite format.

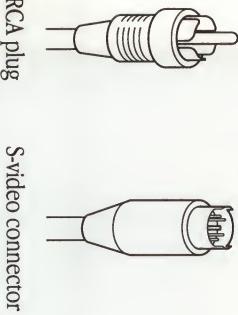
S-video is a less common but higher-quality video format than composite video. Some video cameras and some VCRs provide this format.

- ❖ *S-video or composite?* A few video devices offer both composite and S-video connections; if your equipment has both formats, use S-video for better images. ❖

Types of connectors

The computer's composite and S-video ports use different types of connectors.

The composite port accepts an RCA-type plug, a round metal sheath with one central prong that is commonly used on cables that connect components in a stereo system. The S-video connector is a round plug that has several small metal pins in the center.



RCA plug S-video connector

△ **Important:** The S-video connector closely resembles other Macintosh connectors, such as those for a printer, modem, mouse, or keyboard. Make certain that you don't confuse the kinds of connectors. △

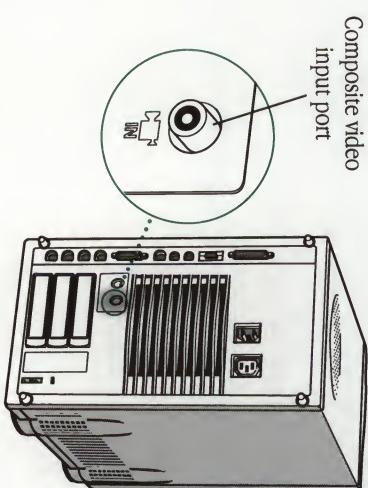
Connecting a video device

To display or capture video signals with your Macintosh, you can attach a video camera, VCR, television, or videodisc player. The port to which you connect the video device depends on whether it provides a composite or an S-video connection.

Check the instructions and cables supplied with your video equipment to determine which video port you want to use on the Macintosh.

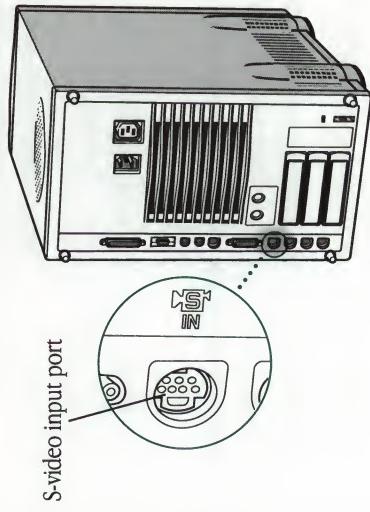
The composite input port

The composite input port is located to the right of the monitor port on the back panel of the Macintosh Quadra 840W. It is the rightmost of the two RCA-type ports and is identified with an icon of a camera and the word "in."



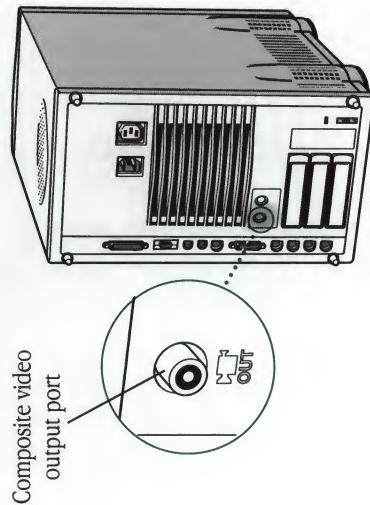
The S-video input port

The S-video input port is located just below the monitor port on the back panel of the Macintosh Quadra 840AV. It is identified with an icon of a camera that shows letter "S," and the word "in."



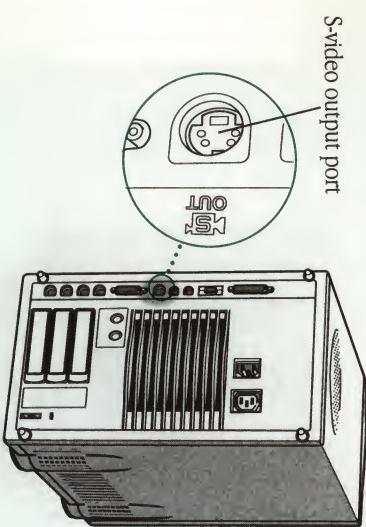
The composite output port

The composite output port is located to the right of the monitor port on the back panel of the Macintosh Quadra 840AV. It is the leftmost of the two RCA-type ports and is identified with an icon of a camera and the word "out."



The S-video output port

The S-video output port is located just above the monitor port on the back panel of the Macintosh Quadra 840AV. It is identified with an icon of a camera that shows the letter "S," and the word "out."



Connecting the device

Follow these steps to connect a video device to the appropriate port on the back panel of the Macintosh.

1. Verify that the video device you want to connect has a cable with either a composite (RCA-type plug) connector or an S-video connector.

Check the instructions that came with the equipment for specific information about attaching the correct cable to the device.

2. Position the video device near the Macintosh so that you can use its controls and so that its cable will reach the appropriate port on the computer's back panel.
3. Shut down the Macintosh and turn off the video equipment, if they're on.
4. Make sure that the connector matches the port that you want to use.
5. Carefully attach the connector to the port.

If the connector doesn't slide easily into the port, realign it and try again. Forcing a connector into the port could damage the computer or cable.
6. Turn on the computer and the video device.

See the next section, "Displaying and Recording Video Images," for some specific examples of working with video.

Displaying and recording video images

When a video device is connected to either of the computer's input ports, you can display the video image on your monitor and capture single frames that you can save as files. When a video device is connected to either output port, you can display or record the computer's output as well.

The examples that follow will give you an idea of the ways you can use video with your Macintosh. These examples tell you how to

- Set up equipment to view video or capture a single frame from a video device
- Display video images in a window on the computer's screen, using the Video Monitor program provided on the hard disk
- Capture a single video frame, using the Video Monitor program
- Digitize small video segments
- Set up equipment to record the computer's output on a VCR, including sound and voice annotation

Setting up your equipment to view video images or capture a single video frame

The steps that follow tell you how to connect a stereo VCR to the Macintosh so that you can view video or capture a single video frame and hear the sound from the VCR. You can use these instructions as a model for connecting your equipment for video input.

1. Assemble the VCR and the cables you need to connect it to the Macintosh.

In addition to the VCR, you need:

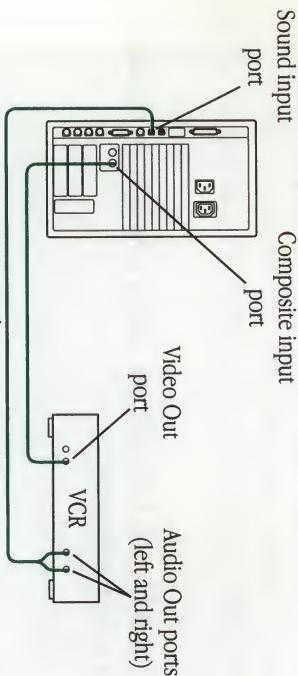
- a cable with one RCA plug at each end
- a cable with dual RCA plugs at one end and a stereo miniplug at the other end (or a dual RCA cable and a Y-shaped adapter with dual RCA sockets at one end and a stereo miniplug at the other end).

You can also use an all-in-one cable (with three RCA plugs at each end) and a Y-shaped adapter if you have this type of cable. All of these cables are available at an electronics supply store.

△ **Important:** A Y-shaped adapter is supplied with the round microphone for some models of the Macintosh. Don't use this adapter with the Macintosh Quadra 840AV; it is not designed for this computer's stereo sound capabilities. △

continues ▲

The illustration below shows the equipment configuration and the connections you'll need to make to display or capture video (and reproduce the video's sound) on the computer.



3.5 mm miniplug to dual RCA plug cable
(available at most electronics supply stores)

2. Turn off the Macintosh and VCR, if they're on.
3. Plug one end of the single-RCA-plug cable into the Video Out socket on the VCR.
4. Plug the other end of the single-RCA-plug cable into the composite input port on the Macintosh.
5. Plug one end of the dual-RCA-plug cable into the left and right Audio Out sockets on the VCR.

6. Plug the stereo miniplug end of this second cable into the sound input port on the Macintosh.

(You can use a Y-shaped adapter to convert a dual RCA-plug cable to one that has a stereo miniplug at one end.)

The sound input port is identified with a Ψ icon. For more information about the sound input port and the stereo miniplug, see Chapter 7, "Connecting Stereo Audio Equipment."

7. Turn on the computer and the VCR.

You can now begin working with the video equipment connected to your Macintosh.

Opening a video window on the screen

Using the Video Monitor program provided with your Macintosh Quadra 840AV, you can view video on the screen and capture a single video frame.

Additional information about the Video Monitor program is provided in the *User's Guide for Apple Extras*.

The instructions here introduce the Video Monitor program's basic operations: opening a video window on the screen and recording one frame of a video image.

Follow these steps to see video on the computer screen.

- 1. Make sure that a video device is connected to one of the video input ports.**

If you need to connect a device or change its connection, turn off both the computer and the video equipment first.

- 2. Open the Apple Extras folder on your hard disk, and locate Video Monitor.**
- 3. Double-click the Video Monitor icon to start the program.**



- 4. Turn on the video device and play an image (usually by pressing the Play button).**

The video image appears inside the Monitor window.



If you don't see an image, you may need to change the video settings in the program.

A window named "Monitor" appears on the screen, with only black inside it. (If the video device is already on, its video image appears in the window.)

continues ▲

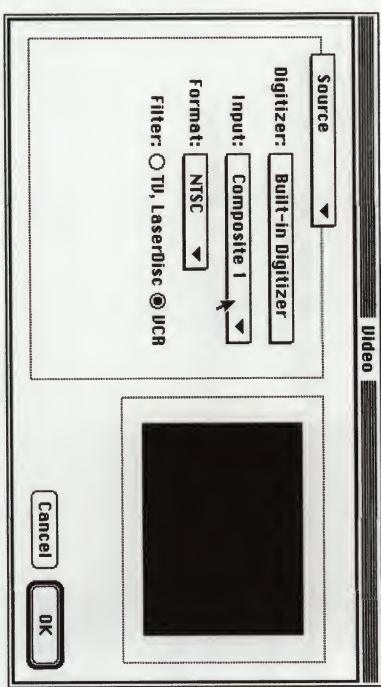
5. If no image appears in the video window, choose **Video Settings** from the **Monitor** menu.



A window named **Video** appears. It contains pop-up menus and other choices on the left side and a copy of the video image on the right side (a black area appears if no image is displayed).

6. Choose **Source** from the pop-up menu at the top left side of the **Video** window.

New choices appear in the window.



7. Change the choice in the **Input** pop-up menu or the **Format** pop-up menu.

- The Input choices indicate the input port for the video device. The preset choice is composite video.
- The Format choices indicate the format, or standard, of the video signal. The preset choice is NTSC, which is used in the U.S. and Japan.

If you still don't see an image in the video window, check that you've connected the video device correctly and that it is on.

Video images and memory allocation

When you use the Video Monitor program (or display video images using another program), the computer divides its screen memory (called video RAM, or VRAM) between standard graphics content—the desktop and icons, for example—and the video image. In some instances, the amount of memory allocated to graphics may prevent the computer from displaying video.

△ **Important:** If you see a message in the Monitor window stating that video is currently turned off, you need to set the monitor to display a lower number of colors or grays. △

Because the computer needs less VRAM to display the smaller number of colors or grays, additional memory can be allocated to the video image.

You use the Monitors control panel to change the number of colors or grays displayed. See the *Macintosh User's Guide* for instructions.

Capturing one frame of a video image

You can capture a single video frame to use in presentations or documents.

Follow these steps to record one frame of the video image in the window on screen.

1. Display a video image on the screen, using the Video Monitor program.

See the preceding section, “Opening a Video Window on the Screen,” for instructions.

2. Choose Copy from the Edit menu.

One frame of the video image is copied to the Clipboard or to a PICT file (a common graphics format). You can then paste the frame into a graphics program, edit it, and save it.

Recording video movies

You can record, play, and edit video segments using any of several application programs designed for this purpose. Several utility programs for working with video and animation are included in the Apple QuickTime Starter Kit, available from an Apple-authorized dealer.

△ **Important:** Video images occupy large amounts of memory and disk space. You may want to increase the amount of RAM and disk storage in your Macintosh if you plan to work with video frequently. △

Setting up your equipment to record a computer presentation on videotape with voice annotation

You can deliver and record a sophisticated presentation by combining the video and sound capabilities of your Macintosh. The steps that follow tell you how to set up the equipment for recording the computer's output on videotape and adding voice annotation with the optional microphone.

△ **Important:** You must use the Apple PlainTalk Microphone with the Macintosh Quadra 840W. You cannot use the round microphone available for some other models of the Macintosh. △

You can use these instructions as a model for connecting your equipment for recording video output and voice.

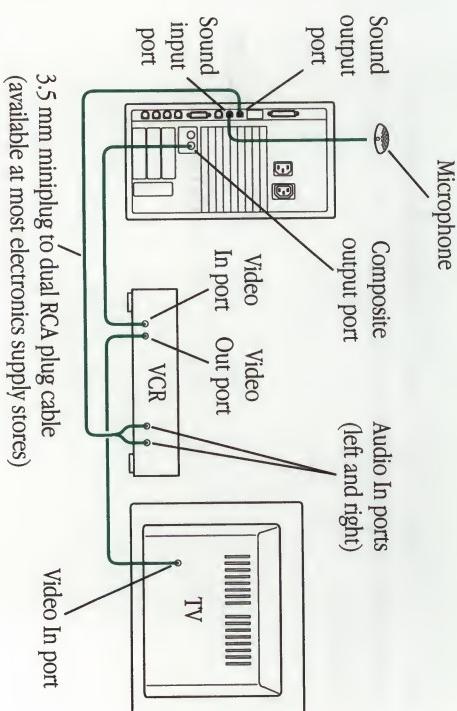
1. **Assemble the microphone, television, VCR, and the cables you need to record the computer's output.**

In addition to the VCR, television, and microphone, you need:

- two cables with one RCA plug at each end—the first and third cables you will connect
- a cable with dual RCA plugs at one end and a stereo miniplug at the other end (or a cable with dual RCA-type plugs at each end and a Y-shaped adapter with two RCA sockets at one end and a stereo miniplug at the other end)—the second cable you will connect

These cables are available at an electronics supply store.

The illustration below shows the equipment configuration and the connections you'll need to make to record the computer's output video and add voice annotation to the video.



2. Turn off the Macintosh and VCR, if they're on.
3. Plug one end of the first single-RCA-plug cable into the Video In socket on the VCR.
4. Plug the other end of the first single-RCA-plug cable into the composite output port on the Macintosh.
5. Plug the dual-RCA-plug end of the second cable (the one with two RCA plugs and a stereo miniplug) into the left and right Audio In sockets on the VCR.
6. Plug the stereo-miniplug end of the second cable into the sound output port on the Macintosh.

(If you use a dual-RCA-plug cable, attach a Y-shaped adapter to one end and then connect the stereo miniplug to the computer.)

The sound output port is identified with a  icon. For more information about the sound output port and the stereo miniplug, see "Connecting Stereo Audio Equipment" in Chapter 7.

7. Connect one end of the third cable (single RCA plug at each end) to the Video Out port on the VCR.

8. Connect the other end of the third cable to the Video In port on the television.

To ensure that your presentation is recorded on videotape and shown on the television, you must connect the VCR to the computer, with the television connected to the VCR. If you reverse the positions of these devices, they will not simultaneously record and display your presentation.

9. Connect the microphone to the sound input port on the Macintosh.

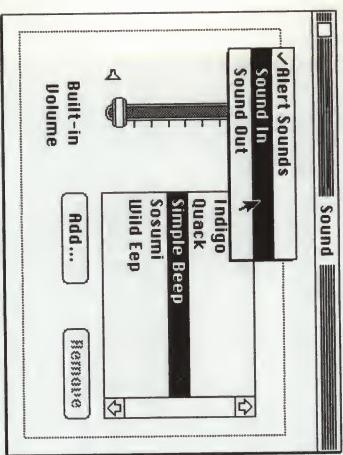
The sound input port is identified with a  icon. For more information about the sound input port and the stereo miniplug, see "Connecting Stereo Audio Equipment" in Chapter 7.

10. Turn on the computer and the VCR and television.

continues ▶

11. Open the Sound control panel and choose Sound In from the pop-up menu.

The Sound control panel is in the Control Panels folder in the Apple menu.



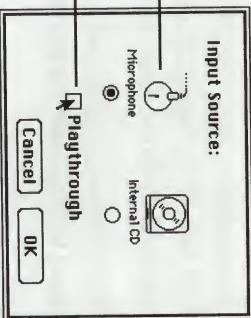
Different choices appear in the control panel.

12. Click the Options button.

The Input Source dialog box appears.

13. Make sure that Microphone is selected, then click the Playthrough box and click OK.

The Microphone icon indicates that the microphone is connected to the sound input port. If a different device is connected, an icon of dual RCA-type plugs appears with the label "External Audio."



Playthrough lets you hear sound from the device connected to the sound input port. In this case, Playthrough sends the sound to the VCR, which is connected to the sound output port.

When devices are connected to both the sound input and output ports, the Playthrough option sends the incoming sound (from the microphone in this example) to the device connected to the sound output port.

14. Close the Sound control panel.

Now your equipment is set up to begin recording with the VCR.

15. To display the computer's output on the television, follow the steps in the next section, "Using a Television as the Monitor."

You can begin with step 2 of this section, because your equipment is already set up.

△ **Important:** To record the computer's images on videotape, you must connect a television to the VCR and use the television as the monitor. △

The computer's images and sound will be recorded on videotape. Whenever you speak into the microphone, your voice will also be recorded on the videotape. When you follow the steps in the next section, the presentation will also be shown on the television.

Using a television as the monitor

You can connect a television to the composite output port and then display the computer's images on it. This capability is especially useful if you're using your Macintosh to give a presentation and you have access to a large-screen television.

You can also connect a VCR and a television in series to the computer's composite output port and record your presentation on videotape as it is displayed on the television (see the previous section, "Setting Up Your Equipment to Record a Computer Presentation on Videotape With Voice Annotation," for details).

Follow these steps to display the computer's images on a television.

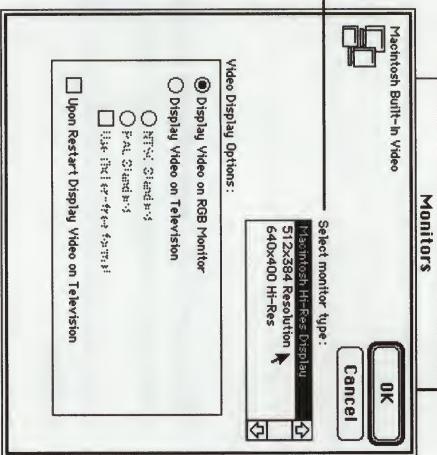
1. Make sure that a television is connected to the composite output port and turned on.
2. Open the Monitors control panel and click the Options button.

The Monitors control panel is located in the Control Panels folder in the Apple menu.

continues ▶

3. In the Select Monitor Type section of the control panel, choose one of the resolution types listed.

You need to choose a resolution of 640x480 or lower to ensure that the computer's entire image is shown on the television (and recorded on videotape if you're also using a VCR for video output).



(If you don't mind having the outer edges of your monitor's image missing from the television screen, you can skip ahead to step 7.)

You can usually use one of these:

- 512x384 Resolution for the NTSC standard used in the U.S. and Japan
- 640x480 Resolution (not shown here) for the PAL standard in most of Europe and Australia.

4. Choose a resolution or monitor name from the list of monitor types, then click OK.

The Options dialog box closes.

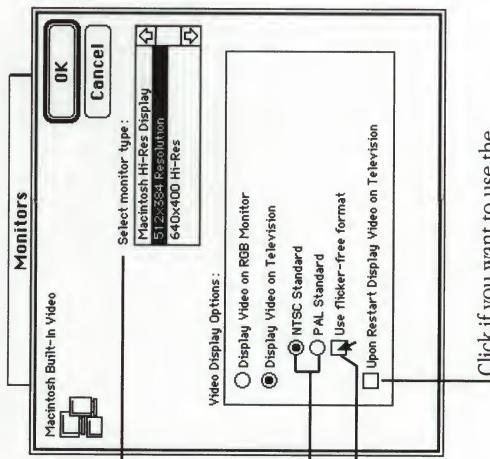
5. Choose Restart from the Special menu.

The computer restarts, displaying an image the size of the resolution selected in the control panel.

6. Open the Monitors control panel again and click the Options button.

7. In the Video Display Options section, click the button labeled "Display Video on Television."

When you click this button, three new choices appear below it.



The current display type is selected.
Choose the type of video signal. NTSC is standard in the U.S. and Japan; PAL is standard in most of Europe and Australia.

Click to eliminate flicker.

Click if you want to use the television as the monitor when the computer starts up (works only if no monitor is connected).

8. Click the options you want, then click OK.
- A dialog box appears, asking you to confirm your changes.
9. Click Switch to change from the monitor to the television. Click Cancel if you don't want to change.

The computer's image is displayed on the television.



Using Stereo Audio With Your Macintosh

You can connect stereo audio equipment to the Macintosh Quadra 840W and play or record stereo sound with the computer. This section provides the information you need for

- Connecting stereo audio equipment for input
- Connecting stereo audio equipment for output
- Playing stereo sound
- Recording stereo sound

Connecting stereo audio equipment

Your Macintosh can play and record stereo sound from a variety of sources. To provide or reproduce stereo sound, you can connect any of several audio devices to the sound input and output ports on the computer. You can also play and record sound from audio compact discs (CDS) using the optional internal CD-ROM drive.

The computer's two sound ports—input and output—accept an audio connector known as a stereo miniplug. This connector is the type used on headphones for a personal tape player, for example.

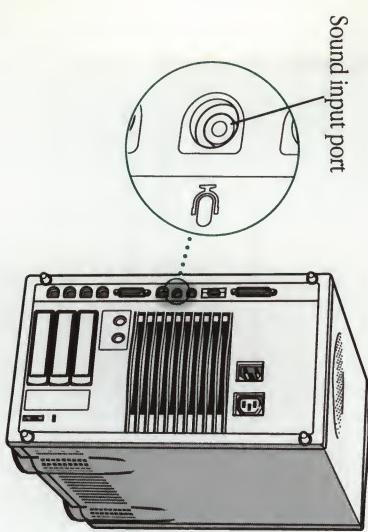


Stereo miniplug

△ **Important:** You will need an adapter with a stereo miniplug at one end to connect equipment that uses a different type of connector. △

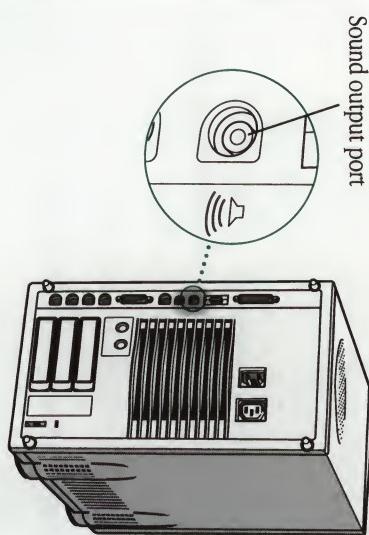
The sound input port

The sound input port is at the center on the left side of the back panel of the Macintosh Quadra 840AV. It is the lower of the two circular sound ports and is identified with an icon of a microphone.



The sound output port

The sound output port is located just above the sound input port, near the center on the left side of the back panel of the Macintosh Quadra 840AV. It is identified with an icon of a speaker.



Connecting an audio device

To play or record sound with your Macintosh, you can attach a microphone, amplifier, tape recorder, or pair of speakers.

You can record sound and video signals simultaneously by connecting a VCR to one of the video output ports and using a cable with the appropriate connectors to link the computer's sound output port to the left and right sound input channels on the VCR.

Follow these steps to connect an audio device to the appropriate port on the back panel of the Macintosh.

- 1. Verify that the audio device you want to connect has a cable with a stereo miniplug connector.**

Check the instructions that came with the equipment for specific information about attaching the correct cable to the device.

- 2. Position the audio device near the Macintosh so that you can use its controls and so that its cable will reach the appropriate port on the computer's back panel.**
- 3. Shut down the Macintosh and turn off the audio equipment, if they're on.**

- 4. Make sure that the audio device's connector matches the sound port that you want to use.**

- 5. Carefully attach the connector to the port.**

If the connector doesn't slide easily into the port, realign it and try again. Forcing a connector into the port could damage the computer or cable.

- 6. Turn on the computer and the audio device and begin to use sound.**

△ **Important:** You must use the Apple PlainTalk Microphone, which is specially designed for the Macintosh Quadra 840AV. This microphone is included with some models and is available from an Apple-authorized dealer. You can't use the round microphone supplied with some other Macintosh models with this computer. △

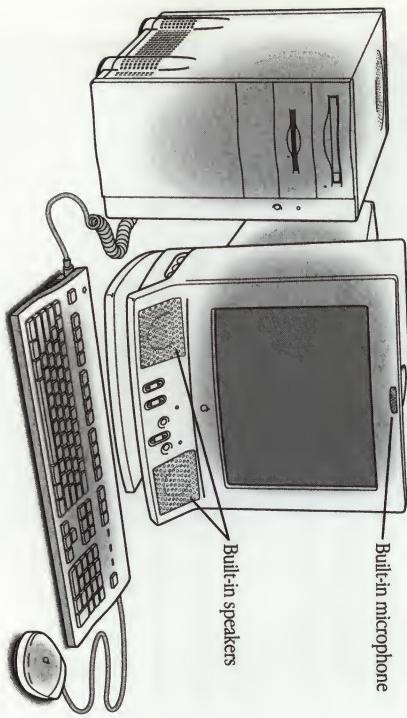
You can use the microphone to record sound or to give spoken commands to the Macintosh. (You may need to purchase optional software and the microphone to use spoken commands. Both are available from an Apple-authorized dealer.)

Working with sound

The Macintosh Quadra 840AV produces stereo sound and provides a choice of several options for high-quality audio.

When an audio device is connected to the sound input port, you can play or record the incoming sound.

When an audio device is connected to the sound output port, you can record the sound produced by the computer or play that sound through external speakers. (Some monitors, such as the Apple AudioVision 14 Display shown below, have built-in stereo speakers.)



△ **Important:** Sound files occupy large amounts of memory and disk space. You may want to try different settings for the sample rate (the Rate pop-up menu) in the Sound control panel to get a balance between sound quality and file size. △

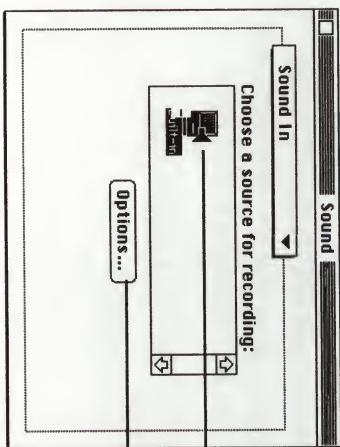
Designating audio input options

You use the Sound control panel to designate the audio input device and options you want.

Follow these steps to specify the input device.

1. Open the **Sound control panel** and choose **Sound In** in the **pop-up menu at the top of the panel**.

The Sound control panel is in the Control Panels folder in the Apple menu.

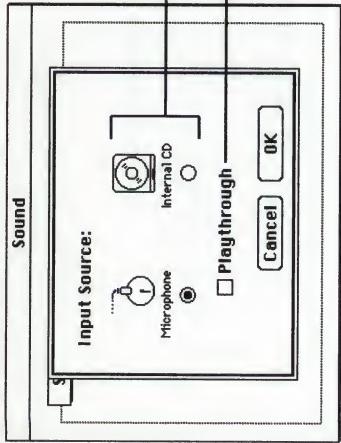


Select the Built-in icon (the preset choice) to use the device connected to the sound input port as the sound source.

Click the Options button to see the available choices.

2. Click the Options button.

The Input Source options appear.



- △ **Important:** If Playthrough is in effect or Internal CD is checked, you won't be able to use the microphone for spoken commands to the computer. △

The device you select will be the audio source until you change the designation (or until you disconnect that device).

Designating audio output options

You use the Sound control panel to designate the audio output device and options you want.

Follow these steps to direct the computer's sound to an output device.

1. Open the Sound control panel and choose **Sound Out** in the pop-up menu at the top of the panel.

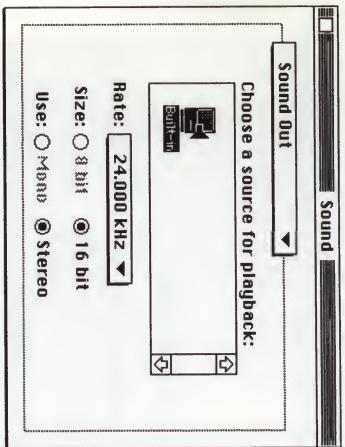
If a different device is connected to the sound input port, the Microphone icon is replaced by an icon of dual RCA-type plugs, labeled "External Audio."

3. Click the button for the audio device you want to hear, then click **OK**.

If you click the Playthrough box, sound from the selected audio input device will play through the computer's speaker.

continues ▲

The Sound control panel is in the Control Panels folder in the Apple menu.



- **Sound output is always 16-bit.**

Like a high sample rate, 16-bit sound yields very high quality and very large files. You may not be able to use 16-bit sound files on some other Macintosh models; only models that use Sound Manager 3.0 or a later version in the system software can use these sound files.

- **Sound output is always in stereo.**

If you use a program that provides sound recording in mono format, you can use its mono setting.

- 3. **Close the Sound control panel.**

The settings you chose remain in effect until you change them.

- 2. **Choose the options for sound output.**

- **Select an icon for the source of sound output.**

The computer is the preset choice.

- **Choose a sample rate from the Rate pop-up menu.**

A higher sample rate yields better-quality sound, but it also creates very large sound files.

❖ *Sound settings, speech, and telecommunications:* To use speech recognition with your Macintosh Quadra, the rate in the Sound Out section must be set at 24,000 kHz, the Sound In source must be Built-in, and Playthrough must not be checked. To use the GeoPort Telecom Adapter with the computer, the sample rate must be set at 24,000 kHz. Be sure to change to these settings if you want to use either speech or telecommunications and you've adjusted options in the Sound control panel since last using it. ❖

Recording an alert sound

Although the Macintosh Quadra 840AV can produce stereo sound, the computer records alert sounds in the same way as other Macintosh models: in 8-bit mono sound, at a sample rate of 22.254 kHz. This makes the alert sounds you record compatible with all Macintosh computers. See the *Macintosh User's Guide* for instructions for recording an alert sound.

Playing sound from an audio compact disc through stereo speakers connected to the computer

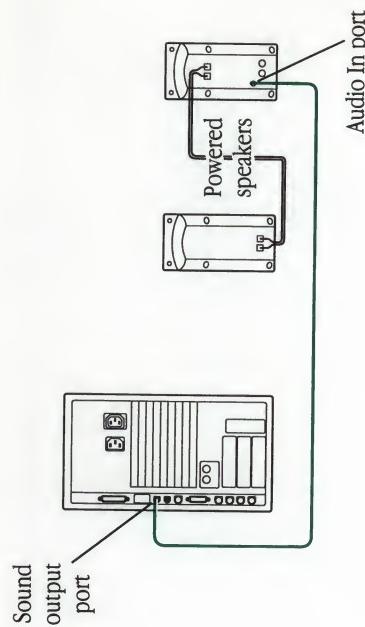
You can take advantage of the Macintosh Quadra 840AV's stereo sound output by attaching external speakers. In the example that follows, the Macintosh has an internal CD-ROM drive, allowing CD audio to play through the external speakers.

You can use these instructions as a model for connecting your equipment to play stereo sound through the computer.

1. Assemble the speakers and the cable you need for a stereo-computer setup.

You need a stereo miniplug cable to connect the computer to one or both speakers. (Some speakers require a dual-plug adapter. Others, like those shown here, accept a single stereo miniplug and are joined by standard speaker wires.)

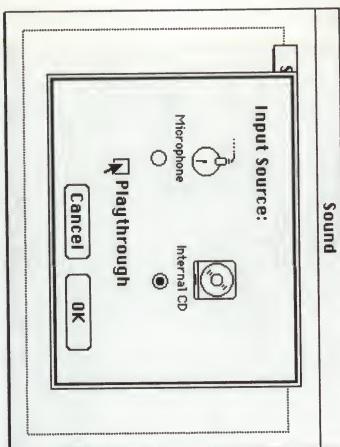
The illustration below shows the equipment configuration and the connections to make for a computer sound system.



2. Turn off the Macintosh, if it's on.
3. Plug the stereo miniplug at the end of one cable into the sound output port on the Macintosh.
4. Plug the stereo miniplug at the other end of the cable into the Audio In socket on one of the speakers.
- If the speakers take a dual-plug cable, connect both plugs.
5. Connect the speakers together with the speaker wires, if necessary.
6. Turn on the computer.

7. Open the Sound control panel, choose Sound In from the pop-up menu, and click both Internal CD and Playthrough.

Playthrough lets you hear the incoming sound (through the internal speaker, if no external device is attached, or through the external device).



8. Place an audio CD in a caddy and insert it in the CD-ROM drive.
 9. Choose CD Remote from the Apple menu and click Play.
 10. Choose CD Remote from the Apple menu and click Play.
- See the *AppleCD 300/300i User's Guide* for more information about the CD Remote program.

CD audio sound

If your Macintosh has an internal CD-ROM drive or you connect an external CD-ROM drive or player, you can use conventional audio CDs with the Macintosh.

Follow these steps to specify that CD audio sound be played through the computer's speaker.

1. Place an audio CD in the caddy and insert it into the CD-ROM drive.

See the *AppleCD 300/300i User's Guide* (or the manual for your CD-ROM drive) for details about inserting a CD.

2. Use the Sound control panel to designate the CD-ROM drive as the sound input device and click Playthrough to hear the CD's sound.

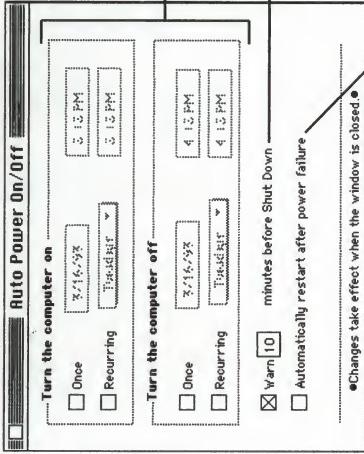
See the instructions in "Designating Audio Input Options" earlier in this chapter for details. Select 44.100 as the rate in the Sound Out section to play the CD at its standard sample rate for the best quality sound.

3. Use the CD Remote program or other software to play the audio CD.
- If your Macintosh came with an internal CD-ROM drive, you can choose CD Remote from the Apple menu. CD Remote is provided with all Macintosh models that have an internal CD-ROM drive and with the AppleCD 300 drive.

Chapter 8

Using Automatic Power On or Off

2. Click the appropriate box to set the computer to turn itself on, off, or both.



You can set a date and time for the computer to turn on or turn off automatically. You use the the Auto Power On/Off control panel to establish these settings.

Follow these steps to set the computer to turn on or off automatically.

1. Open the Auto Power On/Off control panel.

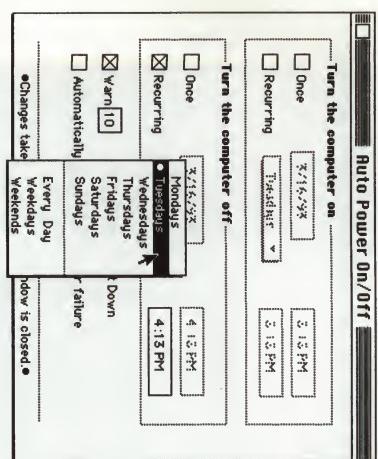


Auto Power On/Off

The Auto Power On/Off control panel is in the Control Panels folder in the Apple menu.

3. Set a time and choose a day or frequency for automatic on or off.

The options you set for the computer to turn on or off automatically remain in effect until you change them.



4. Close the control panel to put the options into effect.

Chapter 9

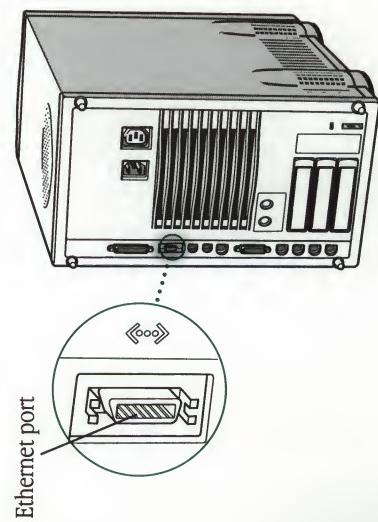
Using Network Services

The Macintosh Quadra 840AV has a built-in port and circuitry for using an Ethernet high-speed network. In addition, the system software has a control panel for use with a token ring network.

Connecting to an Ethernet network

You can connect an adapter and cable for an Ethernet network directly to the computer, without installing an expansion card.

The Ethernet port is identified with the symbol .



To connect a cable to the Ethernet port, follow the instructions that came with the Ethernet adapter you want to use. If you need assistance, consult a network administrator or other technical expert.

Using the Token Ring control panel

You use the Token Ring control panel to specify which expansion slot holds the card for this type of network connection, as well as to set speed, password, and other options.



Consult the documentation for your token ring expansion card and software for instructions.



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The Apple Publishing System

This Apple manual was written and edited on a desktop publishing system using Apple Macintosh computers and Microsoft Word. Proof pages were created on Apple LaserWriter printers and on QMS and Tektronix color printers. Final pages were produced in QuarkXPress and output directly to separated film on a PostScript™-driven imagesetter. Line art was created with Adobe Illustrator. Cover art was produced with Adobe Photoshop. Screen shots were created and modified with system software, Exposure, and SuperPaint.

Text type is Apple's corporate font, a condensed version of Garamond. Ornaments are custom symbols designed for Apple Computer.

PostScript, the LaserWriter page-description language, was developed by Adobe Systems Incorporated.





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